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ARCHITECTURE & RESILIENCE

INTERDISCIPLINARY
DIALOGUES

ARCHITECTURE AND RESILIENCE

Resilience will be a defining quality of the twenty-first century. As we witness the increasingly turbulent effects of climate change, the multiple challenges of resource depletion and wage stagnation, we know that our current ways of living are not resilient. Our urban infrastructures, our buildings, our economies, our ways of managing and governing are still too tightly bound to models of unrestrained free-market growth, individualism and consumerism. Research has shown that the crises arising from climate change will become increasingly frequent and increasingly severe. It is also known that the effects of climate change are not evenly distributed across places and people, and neither are the resources needed to meet these challenges. We will need place-specific responses that engage with, and emerge from, citizens ourselves.

This volume takes resilience as a transformative concept to ask where and what architecture might contribute. Bringing together cross-disciplinary perspectives from architecture, urban design, art, geography, building science and psychoanalysis, it aims to open up multiple perspectives of research, spatial strategies and projects that are testing how we can build local resilience in preparation for major societal challenges, defining the position of architecture in urban resilience discourse.

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Ranald Lawrence is a lecturer in environmental design at Sheffield School of Architecture. His background in architectural practice informs his teaching and research, focusing on environmental performance, energy consumption and user behaviour in the context of climate change. He has worked for several award-winning architectural practices, and taught and published on the history of environmental design, adaptive comfort theory and the implications of the use of technology in buildings. Prior to joining the University of Sheffield, Ranald lectured in the Department of Architecture at Cambridge while completing his PhD on environmental design strategies in late nineteenth- and early twentieth-century buildings. His current research investigates how architects contribute to sustainable adaptation in different cultures and climates, including the Middle East, Asia and Africa.

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Interdisciplinary Dialogues

*Edited by Kim Trogal, Irena Bauman, Ranald
Lawrence and Doina Petrescu*

First published 2019
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
52 Vanderbilt Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

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British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

Names: Trogal, Kim, editor. | Bauman, Irena, 1956– editor. | Lawrence, Ranald, editor. | Petrescu, Doina, editor.

Title: Architecture and resilience : a series of interdisciplinary dialogues / edited by Kim Trogal, Irena Bauman, Ranald Lawrence and Doina Petrescu.

Description: New York : Routledge, 2019. | Includes bibliographical references and index.

Identifiers: LCCN 2018034020 | ISBN 9781138065802 (hb : alk. paper) | ISBN 9781138065819 (pb : alk. paper) | ISBN 9781315159478 (ebook)

Subjects: LCSH: Architecture and climate. | Sustainable architecture. | Architecture and society.

Classification: LCC NA2541 .A69 2019 | DDC 720.1/03–dc23

LC record available at <https://lcn.loc.gov/2018034020>

ISBN: 978-1-138-06580-2 (hbk)

ISBN: 978-1-138-06581-9 (pbk)

ISBN: 978-1-315-15947-8 (ebk)

Typeset in Bembo
by Swales & Willis Ltd

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INTRODUCTION

Architecture and resilience on a human scale

Kim Trogal, Irena Bauman, Ranald Lawrence and Doina Petrescu

Resilience will be a defining quality of the twenty-first century. As we witness the increasingly turbulent effects of climate change, the multiple challenges of resource depletion and wage stagnation,¹ we know that our current ways of living are not resilient. Our urban infrastructures, our buildings, our economies, our ways of managing and governing are still too tightly bound to models of unrestrained free-market growth, individualism and consumerism. Research has shown that the crises arising from climate change will become increasingly frequent and increasingly severe. It is also known that the effects of climate change are not evenly distributed across places and people, and neither are the resources needed to meet these challenges. We will need place-specific responses that engage with, and emerge from, citizens ourselves.

Visions of the near-future city often feature ‘big ideas’, especially technologically driven ones. These include the use of ‘big data’ for the ‘smart’ control of urban resources, artificial intelligence, or the ‘Internet of Things’, in which our devices, fixtures and services will communicate with each other wirelessly, independently and seamlessly to make our homes, buildings and cities more resource-efficient. Here, information and data are the new(ish) ‘assets’ of the city, raising urgent questions of security, ownership and profit-making around that data. Yet the development of new technology alone, however valuable, fails to address the most important point – that the most significant life-changing aspects of climate change require the development of a new paradigm in which scientific inquiry and technologies are applied *to better* the society and environment in which we all live. In their current manifestations, the Internet of Things, forms of automation and other technological fixes do not address vital, social, cultural and political dimensions of resilience. The shift in paradigm we need is ultimately an imaginative endeavour, and one that equally demands ‘big ideas’.

In response, this book emerges from the international conference organised by the Sheffield School of Architecture in 2015, *Architecture and Resilience on the Human Scale*. The conference focused on research, spatial strategies and projects that are testing how we can build local resilience in preparation for major societal challenges such as climate change, scarcity of resources, increases in extreme weather events and shifts in demographics. The conference and this book aim to define the position of architecture in urban resilience discourse, and more significantly, describe how architecture and urban practices can make a transformative contribution. To this end, the conference and this collection of essays have privileged the ‘human scale’: those initiatives working with local participation and the fostering of social relationships and empowerment as a key to building resilience.

In recent years, resilience has moved from being a radical term in ecology, permaculture and grassroots movements (Hopkins 2008) to something like a catch-all which ‘has become the preferred means of maintaining business as usual’ (Diprose 2015, p. 44). It is a term that has been defined by governments and experts, external to those communities, who are told they should ‘become resilient’ (MacKinnon & Derickson 2012). A simplified definition of resilience as simply ‘being strong’ or ‘bouncing back’ is used ubiquitously, from describing a football team’s victory, workers’ capacities to manage stress, to the Bank of England and the former chancellor George Osborne’s discourses around building a ‘resilient economy’.² The ubiquity of the term is potentially due to the fact that resilience in this definition does not say anything about what is good or bad; it says nothing of the political and ethical implications or motivations for action. With cities rapidly adopting resilience as a framework to shape development, we find it crucial to question these dimensions.

In this introduction we trace the emergence of the concept of resilience in ecology and its reception in urban development and the field of architecture, setting out the important interconnection between the ecological and climate imperatives for resilience, to be considered with social justice and community imperatives. The focus of this book is concerned with resilience at the ‘human scale’, the lived scale of buildings, neighbourhoods and everyday life, and it is in this important dimension that we consider architecture must intervene.

Resilience: the re-definition of a radical concept

During the 1970s the term ‘resilience’ emerged in different disciplines, from psychology to engineering and ecology. While very different in scope, a common feature concerned the ability of a person, material or ecosystem (respectively) to withstand, absorb and recover from stresses or shock. In the ecological sciences, the introduction of the term is credited to C.S. Holling, and it is from this field in particular that resilience has had success in spreading across many different fields. Holling’s contribution to the science of complex systems shifted the focus away from the concepts of stability and equilibrium in an ecosystem to resilience,

which he defined as ‘a measure of the persistence of systems and their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables’ (1973, p. 14). His initial study, since further developed by him and many others, retains significance in our dramatically changing climate, as we move to more extreme conditions and greater instabilities. His study of resilience along with other studies since have been particularly concerned with the impacts and inter-relation of human activity and ecosystems.³ As Folke et al. put it, ‘social–ecological resilience is about people and nature as interdependent systems’ (2010, p. 2).

The application of complex systems theory to urban environments has therefore been particularly appealing in that it goes further than sustainability in addressing our changing and unstable climates, connecting the social and the ecological. Yet, as numerous scholars have pointed out, while the term has some advantages over sustainability, the translation of a concept from ecology to social realms and to the city brings a range of difficulties (Davoudi 2012; Fanstein 2013; MacKinnon & Derickson 2012; Vale 2014). A primary problem when applied to social realms is that it is unable to account for power and inequity. If social processes of change and decision-making are seen as taking place within complex systems represented by ‘networks’ of actors, this is a representation in which, as Fanstein argues, ‘everything is connected to everything else, there appears to be no overriding logic, no agents, and no targets for effective action’ (2013, p. 7). With social and political scientists Walker and Cooper demonstrating strong ideological links between resilience and neoliberalism (2011), concerns have been raised that resilience as a policy framework for cities can ‘produce outcomes that further entrench vulnerabilities and socioeconomic impoverishment’ (Ziervogel et al. 2017, p. 126), whereby ‘scarce public resources [are directed to] areas of high economic value without giving commensurate attention to *historically neglected neighborhoods*’ (Shi et al. 2016, p. 132).⁴

Given that exposure to crisis and insecurity are *already* uneven,⁵ urban resilience needs to be understood as not only about resilience to large-scale shocks, but something that is significantly conditioned by everyday life and by the conditions of austerity, poverty, exclusion and marginalisation. As Derickson and MacKinnon put it: ‘the ability to meaningfully influence climate futures and contribute to the process of imaging and enacting alternative futures [is unevenly distributed]. This uneven capacity is shaped and conditioned along persistent axes of sedimented social difference’ (2015, p. 305). Or, put in other words: ‘resilience itself is distributed in unjust ways’ (Khalil et al. 2013, p. 3).

For these reasons among others, resilience in urban planning, geography and architecture has recently become a more expansive call, connecting to ideas about the right to the city (De Carli Chapter 7), social justice and empowerment, with Petcou and Petrescu in particular articulating the ‘right to resilience’ (2015, see also Chapter 21 in this volume). With these authors arguing that a resilient city must inherently be a more just city (Khalil et al. 2013; Vale 2014; Ziervogel et al. 2017), *resilience is thus seen as needing to engage with material redistribution of resources*

and capacities (the means of resilience), and become more just in terms of its processes, citizen participation and empowerment. It concerns a right to participate and a right to imagine and shape the future (Petcou & Petrescu 2015). This is one of main reasons why this book engages with resilience on a ‘human scale’, discussed further below.

One of the discussions in urban resilience literature has concerned the problems of transferring concepts from physical sciences to the social realm,⁶ with some scholars preferring to eschew the term ‘resilience’ altogether.⁷ However, we agree that resilience should still be viewed ‘as having the potential to develop as a more radical and transformational agenda’ in that it is linked to local, grassroots environmental initiatives and ‘approaches to climate change that argue for resilience as a “de-centred, de-commodified and de-carbonised alternative” (Brown 2011, p. 14)’ (Shaw 2012, pp. 309–310).

Resilience, as it was developed in ecological systems analysis, emphasised certain qualities that *make* a system resilient, such as diversity; redundancy; connectivity; continuous learning and experimentation; high levels of participation; and polycentric governance (Biggs et al. 2012). While they do and can align with neoliberal approaches, they are also potentially transformative concepts when thinking about urban locations and development. How can we have, for instance, diversities of tenure, ownership and inclusive access to housing? What kinds of diverse economies are being performed, and what kinds of non-market forms of collectivity and participation are being developed? Could we have a diversity of energy sources, and diversity of forms of their control and management? How might a diverse, creative and participative future for energy be imagined and realised (see Tyszczyk & Udall, Chapter 3)?

Similarly, supporting the ‘redundancy’ of a system requires a different approach to thinking about people, place and time. If resilience requires ‘redundancy’, would it therefore mean rethinking ‘idleness’, as the philosopher Bertrand Russell (1932) once formulated, and demand an engagement with critical perspectives on ‘work’ (such as Weeks 2011)? Resilience science has also emphasised the importance of learning, adaptation and self-organisation within a system (Folke et al. 2010), and indeed in urban resilience learning and capacity-building at the level of households, neighbourhoods, cities and regions, are all seen as crucial to address current ecological crises (Archer & Dodman 2015). If resilience involves ‘high levels of participation’ and ‘continuous learning and experimentation’, how can resilient practices enable empowerment and the autonomy of a locality?

Taking resilience as a transformative concept, our concern with this book is to ask where and what architecture might contribute. This might mean forms of architecture that are in themselves more resilient (such as resilient or autonomous buildings) or could contribute to wider urban and neighbourhood resilience. What is the ethical, political and social capacity of architecture in helping to build alternative, resilient futures?

The human scale?

Cities, while being one of the major proponents of consumption and waste, and a major source of emissions, are also seen by some as being the best scale to tackle resilience and global ecological problems. Barber (2013), for instance, argues that cities hold the best democratic potential for change, being the scale at which ‘bottom-up citizenship, civil society and voluntary community’ emerges. There is acknowledgement that it is cities that are taking action, and by sharing knowledge through city-to-city networks, collaborations are enabled that aim for greater effectiveness in challenging global-scale problems than isolated endeavours. Yet there is also an acknowledgement that of course not all cities work well, and in fact that it is the neighbourhood, understood as the ‘building block of cities’, which is equally important, but has received comparatively less attention (Mayer 2012; Moulaert et al. 2010).

Research has suggested that place-based approaches are key in building resilience, highlighting a need for ‘placemaking [... and a] basic infrastructure of public spaces’ in building neighbourhood resilience, especially in areas under socio-economic stress with retrenching local authority services (Platts-Fowler & Robinson 2013) (see the interview with Tina Saaby, Chapter 20). It is in recognition that not only can ecological loops be closed effectively at this local level, but moreover that new material infrastructures *can be made and claimed by citizens*. Recognising that architecture is always located somewhere, it is in these places where change happens with people. In the age of climate change and peak oil, resilience requires qualities of so-called ‘social capital’ – trust, collaboration, cooperation and leadership – which is rooted in the place where people live (Lewis & Conaty 2012, p. 26). In its more radical and critical formulations, it is the only way transformative resilience can really be achieved (Petcou & Petrescu 2015), and it is through the spatial, social and community practices *on the ground* that resilience is made.

The focus on ‘the local’, as contributors here highlight, does not mean ‘localising’ structural problems. Rather, it is one location from which to challenge and transform them. We need “‘resilience from below” [and to consider ...] how resilience may be associated with ideas of rights, power and agency’ (see De Carli, Chapter 7, and Becerra Santacruz, Chapter 18). Other key issues raised here include the rights to inclusive, affordable housing, paying particular attention to low-income groups and vulnerable inhabitants and to the collective agency of those in informal settlements (see Pickerill, Chapter 6, and De Carli, Chapter 7). Following Lefebvre’s argument for the ‘right to the city’ (Lefebvre 1995 [1968]), the ‘right to resilience’ (Petcou & Petrescu 2015) will need certain conditions if it is to take place, and here we also find projects initiating and sustaining grassroots self-organisation and management, creating new social and economic agencies for citizens as well as new roles for architects, other professionals and local actors.

The sustainability of ‘human-scale’ actions is also important here, with authors analysing the intangible qualities of sharing and mutuality in ‘enduring’

intentional communities highlighted by geographer Helen Jarvis (Chapter 5). In the context of local resilience, *how* collectivity is constituted and what we mean by ‘community’ is important, and several authors question forms of belonging and relating that are not rooted in identity and exclusion (Weintrobe, Chapter 12, Krasny and Schalk, Chapter 14, and D’Oca, Chapter 17).

At the human scale, we are also concerned with the important ‘building block’ scale of resilience, how buildings themselves will need to change in order to help create a resilient future. How will buildings help us adapt to our changing climate and help the transition to low-carbon, ecologically sensitive and equitable lives? Here we find instances of new forms of eco-housing (Roaf, Chapter 11, and Pickerill, Chapter 6) or the introduction of affordable ‘passive’ technologies (Bauman, Chapter 13).

The structure of the book

While ‘resilience’ is a term that is often over-used and abused, this book follows radical, ecological definitions in order to explore the capabilities of architecture to build social and ecological resilience. The question of how to make neighbourhoods and urban localities resilient is not specific to any one field, so this volume connects architecture to a range of interdisciplinary perspectives. These include academic and practice perspectives from psychoanalysis (Weintrobe), geography (Pickerill, Jarvis), urban design (d’Oca), art practices (Krasny and Schalk), building science (Roaf), critical urban history (Pilav), as well as architectural and urban practices (Hassett, Bauman, Saaby, Petcou and Petrescu).

In providing such an introduction, the volume is structured through a series of ‘dialogues’ which aim to cluster chapters together in ways that put different views in tension, to open up difference and discussion, rather than lining up different views positivistically. The ‘dialogues’ cover questions of: (I) narratives of resilience, (II) community resilience and the right to housing, (III) new pedagogies of resilience, (IV) challenging climate denial, (V) resilience ethics and interdependence and (VI) scales of resilience concerning the city, the region and globalisation. Accompanying the authored chapters, the book includes practice-based interventions, in the form of interviews, to give space to otherwise unarticulated and valuable knowledge from practice.

Dialogue I: narratives of resilience

In this ‘dialogue’ we learn of the importance of practices of representation, memories and stories in building resilience. For Pilav (Chapter 2) and Tyszczuk and Udall (Chapter 3), a common and significant feature is that those narratives *are collective and co-produced*. Pilav introduces us to citizens’ documentary practices and representations of their everyday survival during the siege of Sarajevo. Through representations such as drawings by architects, photographs, as well as citizen’s film-making and other ‘witness devices’, we can understand not only

wartime conditions and inhabitants' clever techniques for survival, but also the importance of creating collective memory. The collective memory of the 'reproduction of everyday life, based on collectivity and solidarity among citizens' is key in building resilience, constituting evidence of it happening and evidencing its possibility.

In Chapter 3 Tyszczuk and Udall present Future Works, a project that addresses the profound changes needed in society's relationship with energy if we are to reduce our greenhouse gas emissions and transition towards a low-carbon future. Working with a range of factories in the English Midlands, Tyszczuk and Udall convened co-produced 'energy stories', each examining our relationships with energy past, present and future. Tyszczuk and Udall argue that these shared stories not only reveal changing social relations and energy systems, but that the stories themselves can also be understood as a valuable resource. They can not only help us to think about how change can come about, but also allow us to participate in that change.

In Chapter 4, the architect Grainne Hassett reflects on her experiences in the now-dismantled refugee camp in Calais. In this dense, transient space, Hassett questions what kind of role architects could meaningfully take. Hassett discusses representations that bear witness, and at the same time she reveals the confrontations between architectural representations of solutions and lived reality on the ground. The inadequacy of the latter represents hugely important lessons for architecture. Hassett argues that narratives around architecture need to be widened to take in broader processes, encompassing 'more of the forces that shape a project', such as flows of capital, labour conditions and materials, allowing architecture to better engage with its own conditions.

Dialogue II: community resilience and the right to housing

There is an intimate connection between affordable housing and resilient cities, with social geographer Helen Jarvis (Chapter 5) explaining the ways housing insecurity is linked to impoverished resilience.⁸ Instead, she proposes that we need to learn from cooperative and collective housing provision and explores what she calls 'social architectures'. These are the practices of sharing and mutuality that characterise collective housing. Considering the cases of the Findhorn Community in Scotland and Moora Moora, an Australian rural cooperative community, Jarvis introduces the ways that 'social architectures' can increase community's resilience, particularly in meeting issues of aging.

Arguing that affordable housing is an outcome of social justice, the geographer Jenny Pickerill (Chapter 6) holds up the possibility not only of universal housing, but of ecological housing for all. Pickerill points out that the perceived cost of eco-housing is one of the main rationales 'used to explain its lack of uptake'. Going on to unpick the costs of eco-housing, Pickerill presents some of the strategies being undertaken to make eco-housing inclusive. She argues for a holistic approach to costing, and presents a variety of concrete approaches to

reduce housing costs, which can be taken up by architects, planners, builders and inhabitants alike in the here and now.

In Chapter 7, Beatrice De Carli presents *Ocupação Marconi*, a housing occupation in São Paulo. She considers the inhabitants' everyday tactics of resilience and practice of self-organisation to redefine resilience as 'a collective capacity to resist disruptions both by coping with stresses *and by pursuing alternative ways of making urban space*'. She argues that the occupation both intervenes in local urban policy as well as contributing to an alternate narrative about housing. With De Carli, we see the right to resilience in action, where housing not only meets an urgent need, but comes to be a concrete, alternative proposition for living.

Dialogue III: new pedagogies of resilience

The capacity to learn is crucial to resilience, with scholars pointing to the ways that we need new skills and knowledge at all levels from households, to communities, to local and national governments (Archer & Dodman 2015). In the chapters here, we find different ways in which pedagogy is important, in building technical skills and knowledges, as well as a practice of building relations, local knowledges and empowerment.

Lawrence and Fellingham (Chapter 8) explore the relative urgency of tackling climate change in two very different contexts: Sheffield and Cape Town. They argue that building resilience to climate change and the collective responsibility it entails is as much a socio-cultural as a scientific challenge, and there is much that can be learned from sharing approaches from different cultures whose similarities are often overlooked at the scale of national or international policy. Lawrence and Fellingham examine how design-research studios based in each city have taken the challenge of building resilience as a catalyst to develop new design approaches grounded in their respective socio-economic contexts.

In Chapter 9, Denicke-Polcher examines how socially immersive 'live' projects at the Cass School of Art, Architecture and Design bridge boundaries between academia, practice and the city in London. Successive cohorts of students collaborate over the lifespan of projects with real clients and budgets, grounded in local communities in the east of the city – a model that challenges the traditional theoretical model of architectural education, which often never leaves the hypothetical realm of the studio.

Finally, an interview with architect and educator Carolyn Butterworth in Chapter 10 reveals how live projects have taken on a broader socio-political role in supporting the places and communities particularly vulnerable to the project of 'austerity', as demonstrated both at the Cass and Sheffield Schools of Architecture. At Castlegate, Sheffield, a partnership between Sheffield City Council and Sheffield University School of Architecture has produced a new vision for community resilience in the face of an uncertain future.

Dialogue IV: challenging climate denial

One of the key aspects of this ‘dialogue’ resonates with the first: that we need imagination if we are to change strongly entrenched, environmentally damaging practices. The authors in this ‘dialogue’ confront the everyday denial of climate change and thus the denial of the scale of problems societies face. Susan Roaf (Chapter 11) points to the ways our current *modus operandi* destabilises established planetary ecosystems to ask ‘how do we break out of a “business-as-usual” mind-set in the design of buildings and settlements’? She asks not only whether there can be an alternative, more resilient, future, but moreover, what is stopping us from getting there? The answer may depend on a radical overhaul of the legislative and regulatory frameworks that have so far failed – or worse, prevented us from developing alternative methods of designing buildings, communities and societies.

The psychoanalyst Sally Weintrobe (Chapter 12) similarly confronts the question of denial to argue that we need a ‘new imagination’. She points to the ways that the material *and* cultural dimensions of neoliberal orthodoxy promote what she terms a ‘culture of uncare’. This is a culture that distances us from others and prevents us from imagining, and indeed having, alternative, caring frameworks of exchange and relating. Architecture, she suggests, can play a crucial role in these frameworks, acting as the medium through which people can reshape their relationships with their spatial and social environment.

This mediating role is the focus of Irena Bauman’s practice-based research, which explores the adaptations that can be made to future-proof existing architecture, as well as the significant institutional and cultural barriers that all too often prevent us from implementing these resilient strategies in our towns and cities. In Chapter 13 Bauman emphasises that not only can architects contribute to advancing knowledge and technological responses, but that these must be tied to cultural and social values. This can be found in the working practices and values of the office itself, promoting alternative economic and social values and privileging well-being and quality of life over profit.

Dialogue V: resilience ethics and interdependence

A key aspect of resilience is understanding the interconnected and interdependent aspects of our lives, and the contributions here highlight the ethical dimensions of these relations. In Chapter 14, Elke Krasny and Meike Schalk shift the definition of resilience away from systems to consider ‘resilient subjects’. Here, resilient subjects are the ones that connect to others, building up networks and communities to challenge social and political injustices. Through the lens of feminist theory, Krasny and Schalk explore three examples of spatial practice to consider how those groups built alliances, creating solidarity, but at the same time working across difference.

Continuing this feminist perspective, Kim Trogal (Chapter 15) introduces care and social reproduction into the discussion, again considering relations of interdependence. Here, as with Krasny and Schalk's chapter, resilience lies not with isolated, individuals or households, but rather in their collective practices. The chapter focuses on traditional subsistence practices as examples of resilience, ones that are characterised by reciprocity and mutuality, arguing that resilience practices must confront political ambiguities, considering how and to whom solidarity is offered, challenging the traditional homogeneity of community groups.

In Chapter 16 Panayotis Antoniadis extends this inquiry into digital realms, arguing that the rights to resilience and participation equally apply here. Starting with the social and political production of information and communication technology infrastructure and networks, Antoniadis looks at the ways that different types of grassroots networking technologies (DIY networking) can offer forms of experimentation and another 'organic' way to build communications networks in which diversity is an important principle. In the face of dominant online platforms and their exploitative use of participants and their data, a resilient city, he argues, instead 'needs the option of an organic Internet, one whose infrastructure is built, owned, controlled, and maintained by local communities'.

In an interview in Chapter 17 urban planner Daniel D'Oca, co-founder of the architecture, urban design and planning practice Interboro, reflects on their approach to resilience in their practice. From working closely with elderly populations, abandoned malls and vacant housing lots, Interboro show attention to the already existing, remarkable resilience and creativity of people on the ground. In Interboro's work we find an ethical approach to architecture and urban design that combines sensitive engagements and attention to people and places, while at the same time engaging with larger-scale climatic and social problems.

Dialogue VI: scales of resilience concerning the city, the region and globalisation

The impact of globalisation and the inequalities it has brought to the fore are often felt most strongly by emerging economies, which also starkly reveal the divide between the institutions and corporations largely responsible for hazards such as climate change, and the individuals and communities who are most exposed. Axel Becerra Santacruz explores this dichotomy in Chapter 18, examining the challenges facing contemporary Mexican communities. He argues that our understanding of concepts such as sustainability and resilience needs to account for this injustice of cause and effect.

This theme is investigated at the regional scale in Chapter 19 by Marcella Del Signore and Cordula Roser Gray, who document ambitious architectural interventions that have not only had a real and lasting impact on their respective neighbourhoods in post-Katrina New Orleans, but also gone on to shape a broader dialogue about how we can build social resilience in other contexts.

Tina Saaby, Chief City Architect of Copenhagen, is responsible for overseeing the policies and guidelines that shape a collective vision of the future of the city. In Chapter 20 she explains how a strategy developed with Jan Gehl Architects takes the existing life of the city as a starting point for the design of urban spaces, which in turn shape the design of the buildings that surround them. This seamless connection across different scales relies on a benign imposition of top-down policy.

In contrast, Petcou and Petrescu's work, discussed in an interview in Chapter 21, explores the ability of bottom-up action in urban centres to absorb the social and economic consequences of the 2007–2008 financial crisis at the same time as furthering resilience to climate change. In response to local and national government inaction, they have developed a bottom-up strategy, joining together community-led projects and facilities that can be adapted to any urban context, responding to the challenges and opportunities presented by the new realities which we all must face together.

Conclusion

These six different 'dialogues' show that architecture is contributing to resilience in many complex ways, including resilience *in* architecture and the ways that buildings contribute to ecological resilience, the capacity to engender learning of resilient practices, and the importance of imagination through both narratives and representations as well as built, living examples. There are broad political and ethical alignments across the chapters, agreement that resilience is not an individual pursuit or responsibility, that resilience is strongly tied to rights, to affordability and social justice – an agreement that resilience demands a different set of ethical demands and practices, and what we find across all the chapters is a commitment to engender possibilities in architecture.

We hope this book contributes to new insights to the theory of resilience, especially by focusing on the 'human-scale' perspective. The theoretical insights and practical solutions presented in the chapters might hopefully contribute to new approaches to resilience in architecture and connected fields, and have an immediate impact on communities and practices on the front line of dealing with the effects of global change. The new critical approaches and the socio-technological strategies the book puts forward as instruments for generative, active and evaluative projects should be contributing to the debate on resilience and providing innovative new forms of inquiry leading to more appropriate solutions to the current global crisis we face.

Notes

- 1 Christine Lagarde, head of the International Monetary Fund, named the intersection of environmental depletion, social unrest and declining incomes as a 'triple crisis' (Inman 2012).

- 2 See, for example, media articles at the time of the conference: Jacob Steinberg, 'Arsenal's away form in Crystal Palace win shows new resilience', *The Guardian*, 22 February 2015, www.theguardian.com/football/2015/feb/22/crystal-palace-arsenal-arsene-wenger-away-form (Accessed 9 September 2018); Jayne Carrington, 'Building resilience into business will benefit people and the bottom line', *The Guardian*, 10 October 2013, www.theguardian.com/sustainable-business/mental-health-resilience-employees-profits (Accessed 9 September 2018), and Larry Elliot and Patrick Wintour, 'George Osborne and Mark Carney issue pre-budget economy alerts', *The Guardian*, 18 March 2014, www.theguardian.com/uk-news/2014/mar/18/george-osborne-mark-carney-pre-budget-alerts (Accessed 9 September 2018).
- 3 In Holling's original study, for instance, he draws on scientific studies of the impacts of sewerage dumping, the dumping of agricultural and waste, as well as fishing, on fresh water lakes (1973, pp. 7–9).
- 4 As an illustrative example, planning scholar Susan Fanstein, discusses plans to increase New Orleans' 'Green Dot Map', which aimed to make room for flood water through measures that included returning parts of the city to open space. But, as Fanstein notes: 'Since the most environmentally challenged land is typically inhabited by low-income residents who initially had few choices, returning the land to its re-inhabited state places the cost burden of relocation on those least able to sustain it. Where waterfront land has been colonised by upper-income residents seeking views, the effort has largely been to protect them and keep them in place' (2013, p. 12). While this particular plan was later abandoned under local pressure, it is nevertheless *emblematic* of a major concern, that the adoption of resilience and climate adaptation measures risks reproducing and further entrenching unequal relations of power.
- 5 As geographer Cindi Katz (2008) notes, Hurricane Katrina took place within an already existing 'landscape of depletion', arguing that the absence 'of the social wage [health-care, education, housing, social justice, and relief infrastructure] both created conditions that made Katrina a disaster and thwarted response to the storm's social, economic, and physical destruction in New Orleans' (pp. 15–16).
- 6 See especially Davoudi (2012) for this discussion.
- 7 For example, Derickson and MacKinnon (2015) put forward a compelling argument to rather consider resourcefulness instead of resilience, as a term that is 'expressly concerned with the capacity of communities to articulate and realize their own visions of the future' (p. 306).
- 8 In Chapter 5 Jarvis writes: 'Structural inequalities extend beyond housing security to magnify the impact of multiple intersecting aspects of residential location, including poor access to transport, shops and healthcare; green spaces, meeting places, friends and family. In short, hyper-individualised housing cultures exacerbate unequal patterns of age-related dependence, and the ways that health and mobility can be disrupted'.

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DIALOGUE I

Narratives of resilience

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2

COLLECTIVE DOCUMENTING OF EXTREME URBAN TRANSFORMATIONS

Evidence of urban resilience during the
war in Sarajevo (1992–1996)

Armina Pilav

Introducing wartime Bosnia and Herzegovina

This chapter analyses citizens' strategies for surviving dangerous wartime urban conditions in Sarajevo, as made evident through their own documentations of photos, videos, and architectural drawings produced both during and after the war. In the last war in Bosnia and Herzegovina (1992–1996), the capital city Sarajevo suffered an unprecedented siege, often noted as the longest siege in modern warfare. In the course of 1992, Serbian forces positioned tanks on the hills around Sarajevo and snipers in the tall buildings located in the occupied Grbavica neighbourhood. In the period between 1992 and 1996 in Sarajevo and in other Bosnian cities, survival became citizens' most important activity. During this time the city of Sarajevo was a battle terrain and its citizens were part of this battle scene throughout. Every day the city was hit by some 4000 shells on average, and among the targets were hospitals, schools, mosques, churches, synagogues, maternity hospitals, libraries, museums, open-air and sheltered food markets, and any place where people stood in line for the limited supplies of food, bread and water (Bollens 2001). Survival became the most important activity for all citizens, and the city, although unsafe, became a survival resource itself.

Due to the constant bombing and the after-effects of such destruction, Sarajevo's wartime situation was extremely dangerous for its citizens, who had to adapt to living in destroyed flats and underground shelters. These often had UNHCR¹ plastic foil on their windows instead of glass, lacked electricity, water and food, and often involved sharing daily life, among neighbours of the same building or in their collective underground shelters. The inability of the city and its inhabitants to function normally demanded the development of innovative surrogates for the everyday objects unavailable to them, such as their invention of

objects for cooking, lighting, sleeping and self-protection. Likewise, they developed alternate models for the safe transportation of goods, along with other urban functions, such as wheelbarrows, self-built transport boxes, baby carriages, and children's sleds in wintertime.

Due to these spatial-social conditions, many citizens felt an urgent need to describe, document and represent daily life during the siege, and took considerable risks in doing so. The siege of Sarajevo has therefore been documented by many different citizen-authors, because every part of the city had witnesses to the war: non-specialists (citizens) who made amateur videos, diaries, photos and conducted fax correspondence, as well as specialists, such as architects, photographers and film-makers. In addition to the reports generated by local and international media operators, citizens were actively engaged in documenting the war and their methods for survival. Their wartime documentation is extremely important as Sarajevo's destruction, which quickly transformed the pre-war, compact city into a ruin, was and continues to be difficult to describe and represent.

Using Sarajevo as case study, this chapter examines the importance of citizens' documentary practices in understanding adaptation to extreme urban conditions. These documents are important in that not only do they represent spatial and social urban resilience during the war, they contribute to the creation of the collective memory. They are 'forms of dialogical visual culture(s)' (Lovink 2011), as well as evidence of collective spatial practices. These images also have great importance for academic research across disciplines – architecture, urbanism, anthropology and media studies; post-war urban, architectural and art projects; and documentary and fiction films.

In studying wartime urban transformations through the various materials, media and data described above, I have learned that to comprehend and represent such an extreme urban condition demands an interdisciplinary approach to research that integrates documents made by many authors. I consider the city of Sarajevo as the physical material of the research, while the documents made during the war are 'cultural materials' (Simone 2007; Ulmer 1994b) for research. Documenting the war using different tools and media products creates images of war. In addition to referencing the media of these cultural materials (photos, videos, maps, comics and so on), I will also use the -ing, or 'gerund', form of these terms, which acts as a noun and represents action. Some of these gerunds already exist, such as mapping, but some of them are words or constructions aiming to represent the *image-making activity*, as it is comicing (the drawing of comics). I use these neologisms in order to demonstrate urban processes in which 'activity and theory merge into one activity' (Ulmer 1984).

Existing images of war and survival have a great impact on those who have no experience of war at all. Moreover, these documents can help them to perceive and understand the realities of war (Sontag 2004), such as ways of waging the war, levels of spatial destruction, and citizens' survival strategies. This chapter takes media expressions as methodological tools for reading and analysing wartime

urban transformations in Sarajevo and citizens' resilient efforts in extraordinary urban conditions. These studies potentially have relevance for our understandings of and responses to other urban emergencies, such as terrorist attacks in 'stable cities', crises due to natural disasters or the phenomena of shrinking cities.

Sarajevo: documenting the war, the city in the war as research method itself²

War tears, rends. War rips open. Eviscerates. War scorches. War dismembers.
War *ruins*.

(Sontag 2004, p. 9)

In academic and military literature, the 'city as battleground' has emerged as an important and timely subject, particularly in the face of emerging terrorist attacks and urban warfare from the 1980s onward. According to Stephen Graham, next to Sarajevo's war (1992–1996), urban conflicts such as those in Grozny in Chechnya (1994), Georgia and South Ossetia (2008), and ongoing conflicts in Israel–Palestine loom large in current military debates about the urbanisation of warfare. I lived in Bosnia during this period, and observed first-hand the urban physical material that is the subject of this research, and the spatial-social transformations that took place: 'the disaster is not the object of explanation, but the subject' (Ulmer 2004) of extreme urban transformation influencing human living conditions.

The collective documentary practices discussed below show how wartime destruction in Sarajevo produced urban and architectural physical materials that were used for collective reproduction of the citizens' survival strategies later on. These documentations confirm Susan Sontag's argument (2004) that 'the memory of war, however, like all memory is mostly local.' To describe the material processes of destruction–production–reproduction of the city during the war, I will use architect Zoran Doršner's term 'destructive metamorphosis'.³ The collection of war documents that I analyse here contains images of war made by the following individuals: Doršner, who contributed to the building of the collective knowledge on war architectural and urban resilience by focusing on spatial physical changes; photographers Zoran Kanlić and Miguel Ruiz; Professor William Tribe, who taught for 20 years at the Sarajevo Faculty of Philosophy and, together with the director Dom Rotheroe, made the documentary film *A Sarajevo Diary – From Bad to Worse* (1993); the FAMA⁴ collective; and citizens of Sarajevo whom I met and interviewed during my doctoral research. The FAMA collective described a new war geography of the city with their *Sarajevo Survival Map* (Figure 2.1). FAMA, in the introduction to *Sarajevo Survival Guide*, reported that during the siege of Sarajevo, citizens were making their life possible out of nothing, adapting to the existing urban materiality produced by military destruction:

On the fifth of April, 1992, around Sarajevo, the capital of Bosnia and Herzegovina, which had about 500,000 inhabitants, around the city in the

FIGURE 2.1 *Sarajevo Survival Map*, 1992–1996.

Source: © FAMA Collection

valley of Miljacka surrounded by mountains [...], appeared: two-hundred-sixty tanks, one-hundred-twenty mortars, and innumerable anti-aircraft cannons, sniper rifles and other small arms.

(FAMA 1993)

As Sarajevo was under siege, certain morphological and topographic features of the urban territory and built environment became more or less conducive to urban warfare, and as such assumed different symbolic and practical significances than originally intended. One critical example is the front line of urban warfare in Sarajevo, which divided certain neighbourhoods in two. This was the case in the Grbavica and Dobrinja neighbourhoods, where the front line was established in between and even *through* the buildings themselves.

Destructive metamorphosis

And soon the form exhibits subtle change.

(von Goethe 1885, p. 2)

The pre-war city was changing rapidly, due to two parallel extreme spatial action–reaction processes. First came the extreme spatial action: the bombing of

the city from the surrounding mountains and hills, as drawn in the *Sarajevo Survival Map* (Figure 2.1). The constant bombing quickly transformed the planned and compact city into a ruin, altering its pre-war urban functions and architecture: public transport, pedestrian paths, living interior spaces, the provision of food and so on. What followed was an extreme spatial reaction to the ruined and non-functioning city: citizens developed survival strategies, creating a collaborative and resilient self-made city, altering urban production on two vertically divided levels: overground and underground. Some of these reactions included: creating urban gardens, producing innovative objects for cooking, heating, lighting, forms of human-powered transportation for different items (Figure 2.2), constructing forms of protection against snipers and shelling (constructed from shipping containers, burned cars and other materials) (Figure 2.3), developing new communication tools through the creation of video messages sent between families in embattled and stable areas, and alternative interior lighting sources as oil lamps (Figure 2.4). One particularly interesting wartime invention was a doorbell made by threading the cord of a baby's musical bedtime mobile through a bullet hole in a door.⁵ The need to survive introduced new architectural and urban elements – both ephemeral and temporary – that were

FIGURE 2.2 Self-made objects for everyday use: cooking and heating, oil lamps, human power transportation objects.

Drawings by architect Zoran Doršner, 1992–1996

FIGURE 2.3 Sniper and shell protection constructions.

Photo: Miguel Ruiz, 1992–1996

made by citizens who produced a space and ‘culture of collaboration,’ based on trust and mutual understanding (Lovink 2011). In analysing Doršner’s idea of destructive metamorphosis of the city, I have relied as well on the work of Johann W. von Goethe, who dedicated his book *Metamorphosis of Plants* to metamorphosis in nature.⁶ According to the *Merriam-Webster Dictionary*, metamorphosis is ‘a striking alteration in appearance, character, or circumstances’.⁷ Von Goethe defines metamorphosis of plants as ‘the process by which one and the same organ appears in a variety of forms’ (Miller 2009). I have employed this term as an analogy for the metamorphosis of the city both during and after the siege.

Documenting the war – materials of war and the reproduction of the city

By analysing the various images of the war and the image-making activities conducted during the war, we can begin to comprehend a fragmented urban territory: ruined, empty, non-defined spaces which contain structures and objects made by accident and for temporary uses, constructed in emergent circumstances where spaces and materials are disintegrated. In disaster circumstances, such as the war in Sarajevo, urban changes are rapid, unpredictable and difficult to control. As a consequence, the well-established planning and design practices

employed by the Yugoslavian government, its planners, state building companies, public officials and most of the state-supported architects to control urban transformations in Sarajevo ceased to work. Architects and planners accustomed to working with official plans and prints began operating in an imagined and ever-changing world, hidden in their flats and shelters. Several architects were rethinking urban and architectural space, starting from the actual war socio-spatial emergency – building from and with the ruins and attending to the survival needs of citizens. Other architects were looking straight to the post-war future, already proposing reconstructions of the existing buildings, and even proposing new structures.

In his proposal for the exhibition *Sarajevo Dream and Reality*, dating from 20 December 1993, architect Zoran Doršner writes:

Proposal of a theme for an exhibition in New York: To present like a realistic caricature a graphic representation of the typical floor plan of a flat from the newer series of social housing in the scale 1:10 with an emphasis on the metamorphosis of the flat's interior during the war, including the details of wartime design for dwelling.

*(text taken from architect Zoran Doršner's proposal drawings,
contained in his personal archive)*

Doršner's architectural work during the war contains texts, journal articles and working sketches, such as free-hand overlapped drawings of the socio-spatial changes taking place in individual residential units from pre-war to war conditions and the civilian rescue equipment used for survival during the siege. From the materials listed above, he produced more detailed drawings for the New York exhibition, and also included an image of the partially destroyed building façade of a typical socialist apartment building, the floor plan of the residential unit before wartime changes (Figure 2.4), the floor plan of the residential unit with the wartime changes (Figure 2.5) and drawings of the civilian rescue equipment as in the Figure 2.4. From Doršner's drawings of the floor plans (Figures 2.4 and 2.5) we can perceive aspects of citizens' everyday life during the war and how the pre-war use of the flat has been changed to include new, necessary functionality: wood and water storage; reinventing existing and constructing new architectural elements, such as a terrace garden and sandbag protection wall; and objects for everyday use made from what materials were available at hand inside the apartment, such as an oil lamp for dark evenings or a cooking and heating stove.

Documenting the war – photographs of the city and photographing the city

The Bosnian war and the siege of Sarajevo were subject to international attention due to the work of both the local media operators and the international media

FIGURE 2.4 Floor plan of the residential unit before the wartime changes.

Drawing by architect Zoran Doršner, 1994

FIGURE 2.5 Floor plan of the residential unit with the wartime changes.

Drawing by architect Zoran Doršner, 1994

stationed in Sarajevo, producing sensational images depicting civilians injured by sniper bullets, or flaming, bombarded buildings. Contrary to the usual focus on the production of 'disturbing photographs' (Sontag 2004), I consider the material destruction of the city and citizens' response to the war emergency from a selection of photos made by photographers Zoran Kanlić and Miguel Ruiz. Both were documenting interior, intimate living spaces and significant material changes of the publicly open and collectively shared spaces between Sarajevo citizens, such as streets and protected green areas. Analysing these photos, I found that they documented the same or similar objects and spatial adaptations to those that architect Doršner drew. Ruiz documented wartime gardens that citizens made on the green areas in between their housing blocks (Figure 2.6) where during peacetime there had been city parks, people waiting in lines for humanitarian aid, families growing vegetables on their terraces and many other survival tactics.

Kanlić in Figure 2.7 documented how people who were living in multi-storey, modern dwellings that had been constructed without chimneys created openings in windows in order to install fume exhausts for aluminium box stoves that they used for heating and cooking. In Figure 2.8, he documented acts of cultural resistance to the siege, such as a concert at the music academy in a room riddled with holes from shelling.

FIGURE 2.6 Urban gardens in the Marijin Dvor neighbourhood.

Photo: Miguel Ruiz, 1992–1996

FIGURE 2.7 Self-made opening for the fume exhaust of an aluminium box stove on the apartment window.

Photo: Zoran Kanlić, 1992–1996

FIGURE 2.8 Concert at the Music Academy in the room with the holes from shelling.

Photo: Zoran Kanlić, 1992–1996

Documenting the war – videos of the city and videographing the city

I would like to ask you, if you have the possibility, invite all citizens who own video cameras to use them, and to prepare filmed material, as that material will certainly have its effect.

(from the documentary film *Do You Remember Sarajevo?*,
2002, 2:30–2:44)

In 1992, during a TV news broadcast, the commander of the police special forces Dragan Vikić implored Sarajevo residents to film from their windows and document the war transpiring in their neighbourhoods.⁸ Many citizens did film their city during the war, no doubt some of them directly heeding Vikić's call. In 1996, Sead and Nihad Kreševljaković began collecting and reviewing such filmic materials and made a video archive of 500 hours of amateur videos, all of different video formats, quality and duration and made by different citizen-authors. Together with a friend, Nihad Alikadić, the Kreševljakovići used this archive to create the documentary film *Do You Remember Sarajevo?*, which was completed and first shown in 2002. That same year, the weekly magazine *Dani* ('Days') interviewed the documentarians and reported:

about one hour of remembering the times which had conquered pride, where just like in the movie, all emotions had been combined: horror, suffering, humour, everything what has touched the besieged city, creating a unique atmosphere in the history of the world.⁹

In the interview, the film-makers explained that the movie doesn't show a single story of one or more main characters and their lives. On the contrary, it attempts to represent every citizen and his or her life during the war. Moreover, according to Nihad Kreševljaković, from 500 hours of video materials, anyone could make a different movie. The amateur videos showed citizens filming from their windows the bombing of the city during day and night, the compact city turning into a ruin, the citizens' architectural adaptations of the interior spaces to the wartime living conditions, soldiers moving in and around the city, inventions of 'survival objects' for everyday use and even entertaining moments during the war. The film-makers also note that for this documentary, instead of actors, the video camera itself is in the foreground. As a medium, a film captures moving images, and thus preserves the condition of whoever is doing the filming – in this case, the rhythms and tensions of living in the wartime city. This is a quality also captured in the medium itself, since videos were made by many authors, different video formats were used: 70mm, 35mm, Super 16, 16mm, Super 8, 8mm, Betacam SP, MiniDV and so on. Film and video in this extreme urban context evidences the rapid urban transformations of war in a highly relational way. The video footage has power to bridge between citizens' observations and their

witnessing of the particularly spatial forms of destruction (revealing both the military violence on the buildings, streets, city and landscape) and its protection, capturing their experiences and everyday survival within it. By compiling such varied media, collected over the duration of the war, the documentary is not only able to show how the forms and uses of space change over time, but captures intimate, individual wartime experiences of the filmed people and their related urban environments, a series of spontaneous everyday moments. In addition, *Do You Remember Sarajevo?* is interesting as a media research tool. It is an example of collective film-making, constituting evidence and shared documentation of extreme urban transformations, and can also be seen as an 'intellectual instrument' (Ulmer 2004) offering both personal experiences and a visual lexicon of ephemeral and temporary spatial materiality of the city in the war for academic research about wartime cities, and finally as a visual reading of the complex urban terrain.

Discussion and conclusion

When the war destruction begins, simultaneously the processes of the rescaling the urban habitat through citizens' own innovative spatial reproductions in their homes begin. For this reason, I began my research on the war, architecture and urban resilience in Sarajevo by considering the single, mid-size family residential unit that the architect Doršner documented in his drawings. In wartime everything that happens often unfolds within that limited area, and while the city still somehow functioned, most of the daily life and survival of its residents were circumscribed within the four walls of their apartments. This compressed space represents the material base for the social-spatial reproduction of Sarajevo and its territory during the war. The idea of 'destructive metamorphosis' proposed by Doršner in this case represents a complex documenting process of the death of the city, its reconstruction, reproduction of space and life that, while consisting of a 'metamorphic process', is not unlike the one proposed by von Goethe, in that it has the ability of 'going backward as well as forward' (Miller 2009). Besides being a relevant documentary example of urban wartime destruction, the Doršner drawings show how interior spaces and individual objects were an adaptation of some already existing object, partially changing its original shape and giving it a new and different use. Against the backdrop of military destruction, these ephemeral constructions of the city during the war (which always risked being destroyed again) also constituted new images of the future of Sarajevo. Doršner perceived the experience of war in Sarajevo as a model for future studies of cities experiencing analogous conditions. In his exhibition text, he writes:

Documenting is terrifyingly didactic for the eventual new subjects at the faculties of law, philosophy, political sciences, architecture – about civilian resistance against the endangerment of elementary rights to life, freedom,

peace, home, privacy, culture, religion, universal human rights, and achievements of civilization. This experience may also serve for a new section of the famous encyclopaedia for architectural standards of Ernst Neufert, a tragic section of the book dedicated to the elementary survival of cities and civilizations that are under the process of deliberate destruction.

(Doršner 1994, unpublished; author's translation)

Although in 1991 the World Wide Web had already been introduced, and the war in Sarajevo started the following year, the conflict was documented using old media formats: texts, fax machines, photographs, hand drawings, journals and video. Wars of today are documented and their images dispersed using both old and new media, such as Web mapping, 3D models, interactive websites, smartphones as 'witness devices' (Lovink 2011), making images and videos using the built-in camera that often are uploaded at the moment of filming to YouTube, Twitter, Facebook, other social networks or individual blogs. According to Stephen Graham (2010), the invasion of Iraq in 2003 'was the first war to emerge in the electronic informational space as a fully coordinated "media spectacle"'. In addition, the commercial news media have appropriated their own digital simulations of cities and spaces where wars are happening (Graham 2010). Yet the evident technological and electronic advancement of documentation of contemporary warfare is hardly contributing to our understandings of how citizens are adapting to wartime urban conditions. In wartime Sarajevo, citizens' resilient practices were changing architecture on a daily basis, in its form and functions, while introducing spatial ephemerality and different architectural aesthetics through repairs of ruins and grenades holes, and adding new architectural elements (for example, sandbags, water collectors and metal sheets from cars). Each building has been transformed, along with some trivial or hidden functions of it – staircases or underground storages became safe zones for the reproduction of everyday life based on collectivity and solidarity among citizens: 'It is difficult to consider that urban resilience could be a universal concept. It can vary depending on national policies, disaster history, and security priorities of every country' (Pilav 2012), but I argue that resilient practices devised by citizens experiencing one war may be useful for those suffering in other conflict zones and contexts. Therefore, collective documenting of the war in the city is a highly important image-making process to capture the evidence of war. Analysing documents from the Sarajevo war shows 'radical transformations' (Woods 1997) by the people who are facing the war every day with their survival tactics and production of the patterns¹⁰ of urban resilience within single spaces and the city-reconfiguring wartime urban situation through local cases. In relation to this, I assumed that the pattern of urban resilience is a combination of creative and innovative spatial practices found in everyday life, social rules and values, and adaptive thoughts on disaster risk within that specific urban environment (Pilav 2012). The local instance becomes the scene of change (Ulmer 2004). Finally, what is possible to learn from this collective knowledge about the war in Sarajevo

is not reduced to a media laboratory of sampling, coping, juxtaposing and recycling of physical and cultural wartime urban materials. On the contrary, Sarajevo has been a field for forced spatial experimentation, difficult life experiences and inventive praxis that today, almost 20 years after the war, can continue to be the ground for the production of common and 'relational knowledge' (Sartre 2004) that later can be compared with and often and often employed using the same or similar survival tactics within some other extreme urban situation of war or natural disaster.

Notes

- 1 The Office of the United Nations High Commissioner for Refugees.
- 2 Gregory L. Ulmer, in his text 'A-Mail: Differential imaging' (2004, p. 125), sees disaster (although he does not specify which disaster) and homelessness as a method, as a subject to learn from: 'Such is the method: homelessness is not something to explain.'
- 3 This term was conceived and used by the architect Zoran Doršner in his proposal for the exhibition *Sarajevo Dream and Reality* at the Storefront for Art and Architecture gallery in New York, 1995. Urbanists, architects and students of architecture from Sarajevo who were working on their ideas and projects during the war took part in the exhibition, which was organised by the Association of Architects of Sarajevo.
- 4 FAMA ('report' in Latin) is an independent production company founded in the pre-war period, working primarily in audio and video media. It was the organisation that produced the *Sarajevo Survival Guide* and *Sarajevo Survival Map*. The *Survival Guide* was written in Sarajevo between April 1992 and April 1993, and contributors included: Miroslav Prstojević (text), Željko Puljić (photos), Nenad Dogan (design), Maja Razović (editor), Aleksandra Wagner (editor and translator) and Ellen-Elias Bursać (translator). The *Sarajevo Survival Map's* contributors were Suada Kapić (author), Ozren Pavlović (graphic designer/illustrator), Drago Resner (photographer), Nihad Kresevljaković (text author), Emir Kasumagić (editor) and Vanja Matković (translator). Today FAMA is registered as FAMA International, and the FAMA Collection represents a virtual bank of knowledge dedicated to the Siege of Sarajevo, 1992–1996.
- 5 For creation of the video messages and the war design inventions, see the documentary film *A Sarajevo Diary: From Bad to Worse*. The author of the film is William Tribe, who taught at Sarajevo University for 26 years, until the war started.
- 6 Von Goethe's *Metamorphosis of Plants* is cited by Gordon L. Miller, who introduces and photographs the plants discussed by von Goethe in his original book. The translation of von Goethe's original work is by Douglas Miller (2009), Volume 12 of von Goethe's *Collected Works*.
- 7 www.merriam-webster.com/dictionary/metamorphosis (Accessed 9 September 2018).
- 8 This is my interpretation, as he did not tell citizens precisely what to film.
- 9 www.bhdani.ba/portal/arhiva-67-281/251/t25130.shtml (Accessed 9 September 2018); author's translation.
- 10 In my article 'Before the War, War, after the War: Urban Imageries for Urban Resilience' (2012), published in the *International Journal of Disaster Risk Science* (Pilav 2012), I introduced the concept of the 'pattern of urban resilience' crossing the analysis I made of the citizens resilient practices in war Sarajevo and theories of patterns by: Christopher Alexander et al., *A Pattern Language* (1997), Paola Viganò, *Elementary City* (1999) and Miloš Bobić's article in *Archis* magazine, 'A timeless pattern language: On the translation of a pattern language' (1996).

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3

FUTURE WORKS

Stories of resilience and resourcefulness

Renata Tyszczuk and Julia Udall

Introducing Future Works

Future Works is part of the AHRC Connected Communities Stories of Change project.¹ The project's aims were to help revive stalled public and political conversations about energy by looking in a fresh way at its past, present and future. It aimed to reveal the dynamism and diversity in the relationship between society and energy in the past and present in order to catalyse the popular and political imagination regarding the potential of and possibility for low-carbon futures. The communities we have worked with on the project, from across policy, industry and the everyday, are far from homogenous. Furthermore, we acknowledged and explored the roots of tensions over energy and resource choices and changes within and between these communities. Conflicts in how the past of energy production is understood (e.g. the miners' strike, pollution incidents); how new developments are considered (e.g. nuclear, fracking, windfarms) and the prospect of future constraints (e.g. power cuts, taxation, resource limitations) have been important considerations. Stories of Change sought to make space to work through disputes and concerns as well as identify routes to viable alternative energy futures. The project was organised into three interconnected stories: 'Demanding Times': which brought together existing communities of interest around energy policy and politics at a national level in London; 'Future Works', which revealed accounts of the relationship between energy, industry and landscape in the English Midlands; and 'Everyday Lives', which explored how energy resources such as coal and wind have shaped life in South Wales.

The Future Works story is based in the English Midlands (between the cities of Derby and Sheffield). It is concerned with the future of energy, work and making in a region that has good claim to being the hearth of industrial manufacturing. A key reference point for the Stories of Change project was

the 2008 UK Climate Change Act's cross-party commitments to the reduction of carbon emissions, and our ambition with the Future Works strand was to explore the changing relations with energy in industry and the role of co-production in these transformations. Future Works built on existing networks of people, energy resources and investment in the region, with a range of project partners including the Advanced Manufacturing Research Centre (AMRC), heritage and museum organisations, Derby Museums, the Derwent Valley Mills Trust, Transition Town groups, and businesses such as Gripple Ltd and John Smedley Ltd. Along with our partner organisations, we worked with a range of artists, and also enrolled Masters Architecture students in the research project with the Future Works Studio based at the University of Sheffield School of Architecture (SSoA).

We understood the wider community of the Future Works project as made up of those connected through energy–industry relations – a powerful yet dispersed set of actors. The project was developed through collaborations with three distinctive industry communities that have been under-recognised and under-researched in relation to energy debates: apprentices (through small and medium-sized enterprises, university technical colleges and the AMRC), employers and employees (through unions, the Chambers of Commerce and businesses) and volunteers (through industrial heritage and museum organisations). Future Works convened energy stories (past accounts, present experiences and future projections) with these three communities via workshops, audio-visual interviews, film, performance, scenario-making, participatory mapping and small group discussions – all of which took place at the sites of industry. We were also intent on finding ways to co-produce stories that acknowledged other overlooked communities: industrial employees of the past and future, and the objects, tools, materials and machines of an industrial landscape. Future Works' aim in gathering these stories was to invite a sense of shared ownership of the dilemmas, choices and possibilities faced by a range of present-day industries (large or small) with the prospect of a carbon-constrained future.

Energy stories

Changes to energy production and use are central to UK climate change policy. The Climate Change Act of 2008 ensures cross-party commitments to make provisions for reduction in carbon emissions by 2050.² However, the changes to the UK's energy system required to meet the targets embedded in the Climate Change Act suggest far more than merely the deployment of marginally cleaner or more efficient products or services. They imply the concomitant transformations of society, including geo-politics, livelihoods, technologies and cultural norms. However, imposed changes to energy systems have been shown to further polarise and alienate people (Van der Horst 2007), tend to neglect the diversity of everyday experiences of energy (Day & Hitchings 2009), and can ignore its uneven geographies (Buzar 2007).

Energy represents a third of UK carbon emissions, so the 2008 Climate Change Act commitment to reducing greenhouse gas emissions by 80% by 2050 compared to 1990 levels augurs a profound change in people's relationship with energy. In other words, we can no longer take energy for granted. In 2009, the UK sourced just over 2% of its energy from renewable sources like wind power, solar or hydro, and despite pledges to increase this to 15% by 2020, this still leaves much to be decided in terms of meeting UK commitments. However, UK energy discourses seem oddly static when compared to the pace and scale of change achieved by other countries with ambitious goals to eliminate the use of fossil fuels such as Sweden, Costa Rica and Nicaragua. Questions of energy security, efficiency of new technologies, demand and supply, ownership and costs make issues around energy more complex, even before taking into account the different understandings of what these things mean to different people and what might need to be considered – social justice, vulnerability, economic sustainability – when deciding the best way forward.

The aim of the Stories of Change project has been to find creative and innovative ways of connecting research on the changing energy landscape with communities. Our response has focused on the contribution the human imagination can make to revealing the changes in energy–society relations of the past, present and future. We asked: why and how do stories about energy matter? The research was founded on current progress in the social sciences in, for example, understanding energy configurations as socio-technical systems (Walker & Cass 2007). It has acknowledged and channelled the often overlooked emotional, imaginative and symbolic territory of stories. For those involved at each of the factory sites (employers and employees, apprentices and volunteers), we found there were plenty of stories to tell about energy and industry. The factory sites are dealing with complex challenges in regard to the way energy is considered, generated, supplied and used, often needing to plan many years into an uncertain future. Questions of resilience and resourcefulness are closely entwined with anticipations of energy futures. Therefore the stories that are told about these futures are critical in helping to chart a way forward during periods of change. Each of the people we met had a different relation to energy and manufacturing – from those who were training in cutting-edge technologies, to those who were employed to repair machinery, to those who made things, to those who chose when and how to renew their enterprise and make changes. We have joined in, convened and taken part in conversations around energy in order to bring new questions, concerns, framings and narratives to light. Throughout we have been aware that all of the energy stories co-produced in the project were provisional and evolving.

Why stories?

The Stories of Change project has investigated the ways in which stories can connect communities, researchers, arts practitioners, policy-makers and others in

a shared exploration of the relationship between society and energy. For us, stories offered a popular and engaging route into thinking about possible energy futures (Smith et al. 2017). Our experience in the project reflects the observation from across the AHRC Connected Communities programme of a widely shared 'desire for space that combines connection and reflection, that enables engagement with the world as well as the ability to step back and ask how it might be otherwise' (Facer & Enright 2016). In our project, stories were understood as providing routes to shared ways of apprehending the world and as having the capacity to reveal an intimate connection with change. Stories can accommodate the messy, contested, inconsistent and idiosyncratic nature of energy–society relations, and as such can be considered 'learning stories' (Janda & Topouzi 2015). Stories can further allow for novel syntheses enabling different people to forge joint narratives to explore alternatives. Stories are thus powerful in the work they can do in permitting new forms of academic collaboration as much as in enabling collaboration between academic and civil society partners. The Future Works approach to co-produced and co-designed storytelling was further informed by critical pedagogy and ideas of 'transformative agency' (Kossak et al. 2009). We considered stories to have their own agency, thus recognising the role of storytelling in creating as well as responding to shifting conditions and allowing for the possibility of purposeful change. The project worked with communities constituted around industry to elicit the stories they wanted to tell. We listened to the questions they wanted to explore further within the project with its routes to policy, other sectors such as education and business, diverse fields of study, from history, geography and literature to engineering and architecture. The project offered possibilities for creative expression of these stories in song, photography, film and installation. Stories gave this project its tone and technique as we experimented with novel ways of allowing demands to be heard, futures to be imagined and actions to be considered concerning ambitious goals around energy system change. In discovering and convening stories, the project has also *made* new collective stories.

The aim of Future Works was to reveal the agency of a wider range of people and things in understanding the resilience, resourcefulness and change inherent in energy systems. Historical work on proto-industries and factories in the region has helped to inform an exploration of energy–industry relations in the present and future. This included an understanding of how the practices of the proto-industrial and pre-capitalist past, prior to the widespread use of fossil fuels, could intervene in and re-frame current political debates on low-carbon futures. For example, the social relations embedded in shared sources of energy for different makers, the role of mills in the social life of the community, and how energy rights and uses were established, transformed and disputed. In short, our research revealed a deeply intertwined material and social landscape of changing relations with energy. Looking to the past of this energetic landscape revealed that when it came to energy, business was far from usual and that the status quo should not be expected of the future. The project has drawn on law court oral testimonies and

other archival material, including ballads, early maps, diaries, museum objects as well as oral memory, local knowledge practices and embodied understandings of the environment for insights into how energy and industry have always been subject to change. The project also worked to convene new stories with our partner communities through participatory mapping, scenario-making, pamphleteering, hacking, songwriting, film-making and prototyping. These collaborative activities have been powerful tools for imagining collective energy futures. The stories generated allow for an engagement with possible and alternative future scenarios in relation to energy systems changes. They have forged more nuanced understandings of energy in space and time that bring together past, present and future humans and non-humans in complex assemblages.

Resilience, resourcefulness and change

The idea of resilience was originally introduced by Holling (1973) as a concept to help understand the capacity of ecosystems to cope with perturbations. The literal meaning of ‘resilience’ refers to the ability to bounce back,³ and the concept envelops a range of different responses to change, mostly drawn from ecological systems thinking, which includes reference to capacity, complexity, connectedness, adaptation and feedback (Brown & Westaway 2011). Resilience has become an increasingly important concept in thinking about the capabilities and capacities of human communities to work through uncertainty, threats, disturbances and shocks in the context of economic, environmental and social crises. Social resilience is often considered within the framework of socio-ecological systems theory: ‘In a nutshell, resilience thinking focuses on three aspects of social-ecological systems (SES): resilience as persistence, adaptability and transformability’ (Folke et al. 2010). The challenge has been to move beyond a focus on the meaning of resilience as a buffer for conserving and recovering, or on the technical and environmental adaptations it might involve, and rather to explore the potential of ‘transformability’.

In the field of built environment studies, ideas of resilience range from future-proofing cities⁴ through to its use as an organising principle and core objective for community and personal transitions.⁵ In the event of disaster there are calls for increased resilience, and for narratives about how resilient ecosystems, people and communities can thrive in the wake of disturbance. ‘Resilience’ is both a flexible and pervasive term in discussions about uncertain futures. Leach (2008) and Shaw (2012) have argued that social-ecological resilience entails a dynamic process of ‘bouncing forward’ – a necessity to transform and innovate. This, however, raises question about the end point of such transformations: whose future aspirations are considered? Which concerns about the future are foregrounded? In other words: resilience for whom, and for what ends (de Carli 2015, p. 392)? Moreover, there is concern that ‘resilience’ is a term that in recent years has been defined and deployed by governments and experts external to the communities which should ‘become resilient’ (MacKinnon & Driscoll-Derickson 2012). Resilience, while

malleable, is thus also a ‘contested narrative’ (Scott Powell, Kløcker Larsen, & van Bommel 2014). Mackinnon and Derickson’s use of the qualifying term ‘resourcefulness’ addresses the identification and distribution of the resources, including knowledge, space and power, in communities and is therefore also an issue of empowerment. To be resourceful implies the potential and capacity for purposeful change.

Engaging with debates around resilience and resourcefulness is about how to both understand and respond to a world of rapid change, complexity and unexpected events. Ideas of transformation are at the core of debates around global environmental change and societal responses (O’Brien 2012). If changes, particularly in the context of climate change, are increasingly understood as potentially radical, unplanned, detrimental and inevitable, they are also accompanied by an imperative for the implementation of sustainability along with planned and profound transformation, especially of energy and consumption (Kates, Travis, & Wilbanks 2012). Our engagement with our project partners through stories revealed the divergent meanings of resilience and resourcefulness within varying challenges to industry and energy relations in the context of global environmental change. Working with stories supported more transformative, inclusive and dynamic approaches to understanding energy transitions. Considering energy as a resource for storytelling allowed for a questioning of the status quo and opened up the possibility of the shared work of designing and shaping alternative futures.

Factories of resilience and resourcefulness

Future Works’ aim was to help generate more plural and situated accounts of energy transformations. Our stories of resilience and resourcefulness draw on the experiences from five different factories. These sites of industry are: the Advanced Manufacturing Research Centre, near Rotherham; John Smedley Ltd, Lea Mills; Gripple Ltd, Sheffield; The Silk Mill, Derby; and Strutt’s Mill, Belper. For each of these factories, energy is a different kind of story. In different ways, they are all resource-intensive industries facing the prospect of needing to adapt to targets for a low-carbon world. Through our collaborative storytelling activities we explored the many different concerns, motivations and hopes of the different industries – large and small – we worked with. Future Works was interested in how these industries understood the process of transformation and transformability. It focused on the development of shared, collective and dynamic energy narratives through interviews, scenario games, participatory mappings, song cycles, pamphlets, film, animations and essays. These ‘energetic stories’ were devised, tested, performed and recorded over a period of three years, during residency activities, workshops and events that took place at the sites of industry. This involved a process of gradually building trust with our partners that enabled dialogue. It required a willingness to take risks with exploring energy from different perspectives and through different storytelling practices.

It has been important to acknowledge that time and history are malleable and entangled in the different understandings of past, present and future relations of energy and industry. So, for example, we prefer not to resort to chronology and refer to the Silk Mill, the site of the first factory, as ‘past’, nor to other going concerns, such as Gripple Ltd and Smedley Ltd, as especially ‘present’, nor even some decidedly 2050-oriented manufacturers such as the AMRC as ‘future’. Each of the factories we worked with have a much more complex relationship with time. Past experiences, present possibilities and future potentialities all contribute to diverse conceptions of resourcefulness and struggles for resilience in the context of energy systems change. Together with our partners we traced the transformations of materials, tools, skills and ideas, and engaged people’s creativity in addressing pressing questions around energy futures and the consequences of change for everyday life. The following brief accounts are taken from the stories we co-produced at the different factory sites involved in the project.

The Advanced Manufacturing Research Centre

Travel out from Sheffield City Centre by road towards Rotherham and the M1, and you will see the blades of the turbine and array of large modern factory buildings that form the Advanced Manufacturing Park (AMP). The site, which comprises the Research Centre, Training Centre and Knowledge Transfer Centre, is home to a set of factories, aerospace companies, machine tool developers, simulation software companies and firms working on nuclear power. The Advanced Manufacturing Research Centre is engaged with defining the ‘Factory of the Future’ (Ridgway, Clegg, & Williams 2013). The AMP in which it sits is located at the site of the Orgreave Colliery – known for the ‘Battle of Orgreave’ during the 1984 miners’ strike. The site has been renamed Waverley, and no physical traces of the colliery remain. As a Catapult Centre it sits at the heart of debates around the future of UK manufacturing, seeking to connect ‘blue sky’ university research to viability in production by bringing together a number of manufacturers on the site. As AMRC with Boeing Research Fellow James Baldwin explains, energy change is mostly understood in terms of investment in the ‘Factory 2050’,⁶ and in technological innovation:

Mass produced products [...] usually have an assembly line which is dedicated, so you never change the setup which runs 8-hours a day and doesn’t stop. [...] With more demand for mass customisation and now mass personalisation, manufacturing systems need to become more flexible, [...] more reconfigurable and autonomous; so self-learning manufacturing systems. [...] and beyond reconfigurable manufacturing systems [...] looking at biological and evolving, so there’s genetic algorithms and evolutionary algorithms behind that. But it’s really about materials and machine tools communicating with each other and optimising their own schedules.⁷

This story of increasing technological sophistication to save time, energy and materials in production processes is led by a group of corporate members who spend significant sums to buy in to access to the research, training and equipment available at AMRC.⁸ Resilience at this vast factory site is mostly understood in terms of investment in the state-of-the-art ‘factory of the future’. Yet, rather than seeing the future heralding an increase in scale, AMRC research has revealed that the future factory might rather be small-scale, distributed, and focused on environmental efficiency and sustainability – not exactly a return to cottage industries, but with important implications for how societal connections in the places we live and work might also be remade in the future with industry and energy in mind.⁹

John Smedley Ltd, Lea Mills

John Smedley Ltd has a long history of 230 years of continuous manufacturing on the same site at Lea Mills in the Derwent Valley.¹⁰ For generations it has employed a local workforce in the production of wool, cotton and silk clothing; from 1784 until 1960 it only made underwear. With the introduction of central heating and as the need for extra (under) layers seemed to diminish, production became focused on high-quality jumpers, dresses and cardigans that, with appropriate care, will last a

FIGURE 3.1 The Rumour Mill animation studio at John Smedley Ltd, Lea Mills.

Photo: Renata Tyszczyk

lifetime. It has been important for the company to think of the factory in terms of continuity, and this helps with identity (and therefore brand resilience) – hopefully continuing to employ a workforce there for generations. Nestling next to Lea Brook, which once powered the water frames, the factory site straddles a steep incline with its complex array of buildings, revealing a mosaic of changes in production and the fortunes of the company. Two hundred years on, a site that once afforded cheap energy now poses challenges for modern production. Commitments to continuity make demands on how the company functions in relation to efficiency and energy (site, workforce, methods, tools etc.), and in compliance with the sustainability requirements of a Royal Charter company. Archivist Jane Middleton-Smith explains:

There are the families of people who've worked here, [...] generations of people who are still working for the company, and that's something that's very hard to put your finger on but is very definitely part of the ethos of this company. Family loyalty, company loyalty, loyalty to the product and to the British manufacturing. And we've got generations – if you think about Joyce, she's here, her daughter's here, her granddaughter's here, so there are multigenerational families, and that gives quite a special ethos to the place I think.¹¹

John Mumby, Smedley's former Head Colourist, expresses the tensions between this ethos and the external pressures for change:

I think the difficulty is that you can't continue it perhaps because there aren't a thousand jobs in this factory like there were all those years ago. Three-hundred now. That's technology replacing, isn't it?¹²

It is an extraordinary achievement for this factory to continue making garments in the Derwent Valley since the eighteenth century. Important choices on what to replace their old heavy oil boilers with or whether to invest in the latest Japanese 3D-knitting machines that would replace four workers are never far removed from everyday relations in the workplace. Smedley's story suggests that resilience for this factory is about an attitude of responsibility and care. This story is vividly captured by *The Rumour Mill*, a stop-frame animation made at Lea Mills by Bexie Bush with dialogue for the film with over 40 employees and volunteers – unheard voices in energy debates. Working from a studio located in an eighteenth-century part of the factory (Figure 3.1), Bexie says it is 'powered by factory workers'.¹³

Gripple Ltd Sheffield

Gripple is also 'tied' to its site by choice, and sees a responsibility to, and a future in, the city of Sheffield.¹⁴ This stance throws up multiple challenges, including how to run a factory in historic buildings, what this means in terms of

FIGURE 3.2 ‘Factory of the Future’ Energy Lab, MArch Future Works Studio, SSaA, 2015.

commitments about relationships with the entire supply chain, the workforce, energy consumption and global presence. Gripple’s response has been to promote future-oriented design thinking that has ideas of local and global interdependence at its core. Their approach to questions of environmental strategy and reducing CO₂ emissions, involves mapping beyond the walls of the Old Gun Works to fully understand their environmental impact at a range of scales (Figure 3.2). As Special Projects Manager Gordon Macrae explains:

We recognised probably about seven or eight years’ ago that we have an environmental impact and where it started from was having the Carbon Trust [producing] an energy audit and they said, ‘Your carbon footprint is great, you’re only using 500 tons of carbon.’ And I thought about that and said, ‘That’s rubbish!’ because if you look at the amount of carbon that we’re using up and down the supply chain, it’s significantly more than that. So we got a university student and we did an exercise into carbon mapping up and down the supply chain [...] we were not using 500 tons of carbon, actually the total was close on 6,500, of that 4,500 effectively comes from the manufacturing process, but 4,000 tons of that comes from upstream manufacturing, zinc and polymers. [...] And then in terms of energy if you take a broader view, because we’re a global business what that means is that there’s probably 2,000 tons’ worth of carbon that’s actually being used either transporting raw materials into the business or transporting out to our

FIGURE 3.3 Gripple Ltd, Old West Gun Works, Sheffield.

Photo: Renata Tyszczuk

customers. And the lesson that we've learnt there is that we need to focus on that both in terms of the cost, but by going with suppliers that effectively are focused on doing it in on an environmentally friendly basis and the two can actually work.¹⁵

Gripple choose to take responsibility for their suppliers, supply chains, energy use and the working conditions at their own factory sites and the factories of suppliers in other countries. Moreover, agency is distributed throughout the workforce: each employee plays a role in decision-making and shared responsibilities. The values embedded in the employee-owned company's ethos are key to the way it makes decisions. Gripple's is a narrative not only of positive material transformation and industrial experimentation, but of social innovation (Figure 3.3).

The Silk Mill, Derby Museums

The Silk Mill in Derby is reputed to being the world's first fully mechanised factory. As part of Derby Museums, it has undertaken a radical shift in its agenda over the last five years, 'reinventing itself for the twenty first-century', as a Museum of Making, opening itself up as a convener for public initiatives (while

still keeping some old bits of machinery running). Their approach to achieving resilience emphasises societal learning and innovation, conceived in terms of wider publics, but also in terms of their relationship with industry, local small and medium-sized enterprises and Rolls-Royce. The Silk Mill's resilience is often based on making these relationships work, especially with growing concerns about cuts in government funding for the museums sector. There remains an inherent tension between industry sponsorship and their commitment to both global environmental change issues and widening participation. Tony Butler, Executive Director of Derby Museums, tells us:

I think the thing that we will be most interesting, but also of most use, is how [Derby Silk Mill will] use the past to help us approach the challenges of the future. And we can name the challenges: climate change, resource equity, resource depletion, greater desire for autonomy as individuals. But the twentieth century industrial society has put us in a place where that's much more difficult to address, and what our challenge will be in the future is to say what did we learn over the last 300 years about our ingenuity and creativity to address the challenges of the future.¹⁶

FIGURE 3.4 Future Works 2050 scenarios workshop, The Silk Mill, Derby, 2014.
Photo: Renata Tyszczyk

There is a sense here that resilience for future challenges necessitates revisiting the past. It is also about the resourcefulness of a ‘city of makers’ and the civic role of the twenty-first-century museum. ‘Using the past’ is not simply about safeguarding a historic building or the legacy of a region famed for its impact on industry. It also addresses the societal learning required for an energy-constrained and uncertain future (Figure 3.4).

Strutt’s North Mill, Belper

Strutt’s North Mill, a museum in Belper, achieves its resilience through a devoted volunteer group that works with transition groups and as part of other local networks.¹⁷ The museum puts research and learning at the top of its agenda. This means taking generations of schoolchildren around the site to see buildings whose innovative iron-frame construction made skyscrapers possible and hear about water power, which was critical in the eighteenth century, making the Industrial Revolution initially ‘low-carbon’ rather than fossil-fuelled, as tends to be assumed. Trustee and Museum Manager Mary Smedley (Figure 3.5) points out that the mill has hydroelectricity, now fed into the National Grid, that uses the watercourse Jedidiah Strutt created in 1776.¹⁸ Volunteers understand the role of

FIGURE 3.5 Interview with Mary Smedley, Strutt’s Mill, Belper, 2015.
Photo: Renata Tyszczyk

the historic mill in other important areas, for example as a focus for activities for the University of the Third Age¹⁹ and local debates and initiatives about society and energy use in transition. Their research into the mill site, wheels and watercourses informs the work of the Belper transition group and ADVyCE,²⁰ which are rethinking the importance of water as a source of energy for the whole Derwent Valley region into the future. The founder of ADVyCE, Ian Jackson, tells us,

And the actual story of the Strutt's in Belper is absolutely fabulous from a low carbon point of view. We know the factory automation system started here, that's why it's got its World Heritage Designation, but what we've come to realise is that Belper and the area was unique because it was a low carbon industrial revolution. So it all started in the 1780s, 1790s, with the water wheels, and the site developed and it grew. And as it grew he built additional weirs, raised the weirs, developed the water wheel, developed controls and engineering systems. So for 70 years the whole site was low carbon. He had five local farms producing the food for his workers. People could walk to work, the town developed purely to keep the cotton mill going [...] and there is just so much we can and should learn from how Belper ran for 70 years, competing against the Lancashire mills, which were fossil-fuel fired, but it did compete. It innovated and it used the resources that it had locally, and we are convinced there's a lot still to learn about Belper from the past that we can use going forward and in the future.²¹

One of the most important resources in the region is its own story of dramatic industrial and yet 'low-carbon' transformations, and along with this, the wealth of past experience and ingenuity. The story of the early factory system is one of rapid innovation, which was spurred by local skills, understanding and know-how, using whichever technology was appropriate to the social and physical context. The collaborative piecing together and the telling and retelling of the story of Strutt's Mill and the wider network of Derwent Valley industries has been key in forging new alliances, whether for supporting community energy schemes, university-based research into food systems and agriculture or exploring transition pathways to decarbonising society. The past has revealed its potential to prefigure alternative scenarios for the Derwent Valley's future in the context of a changing energy landscape.

Conclusion: what next?

Future Works has encountered factories of resilience and resourcefulness: these are sites of industry where the ability to adapt and change is *made*. The stories from these factories have revealed diverse ways of responding to clusters of concerns around energy: the question of how businesses can plan long-term when governments' decision-making about energy is relatively short-term; the

problems of adopting certain technologies over others in times of rapid change; the adverse effects of global environmental change on supply chains; anxieties over automation in relation to labour; the distractions of ‘silver-bullet’ technological fixes; and the obstacles to establishing relationships between important individual, collective and societal values. Shared stories – whether of the past or of an imagined future – can contribute to societal learning about energy transitions. They can reveal the importance of social relations within energy systems changes, the possibilities of engaging with emerging technologies otherwise, and the potential for communities to not only imagine but participate in change.

Future Works revealed that energy transitions in industry are inevitably co-produced through connections to other times, places and practices. These connections were made through stories. The project explored how a range of people involved with industry have pro-actively engaged with energy systems change and can do so again in the future. It uncovered stories that questioned the idea that industry is, has and will be tied to a carbon-based economy. The co-produced stories challenged the sense of being ‘locked in’ to particular energy systems and traced how change could be nurtured through innovation and experimentation. The factories involved in the project have shown that they are far from static or stable entities that can be steered in energy transition. Rather, they are part of the change, and can thus be understood as dynamic and evolving. A driving purpose of the Stories of Change project was to help to make the public and political conversation around energy both more plural and more dynamic. It asserted the inevitability of being caught up in energy systems transformations. An informal strapline for the project was: ‘Change is coming – what sort of change do you want?’ This was a provocation to improve our collective imagination of energy futures. We don’t know how these stories about energy, industry and resilience will unfold, but it’s already clear that this is a resource well worth caring about and attending to.

Notes

- 1 Arts and Humanities Research Council Connected Communities, ‘Stories of Change: Exploring Energy and Community in the Past, Present and Future’ (AHRC award number AH/L008173/1). This project was a collaboration between the Open University, the Universities of Bath, Birmingham, Exeter, Sheffield and South Wales, and arts organisations TippingPoint and Visiting Arts. See <http://storiesofchange.ac.uk> (Accessed 9 September 2018).
- 2 See ‘Target for 2050’ in the UK Climate Change Act 2008, www.legislation.gov.uk/ukpga/2008/27/pdfs/ukpga_20080027_en.pdf, and *The UK Low Carbon Transition Plan* 2009, http://webarchive.nationalarchives.gov.uk/20100509134746/http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx (Accessed 9 September 2018).
- 3 The *Oxford English Dictionary* definition of resilience is: ‘1. the ability to recoil or spring back into shape after bending, stretching, or being compressed; 2. (of a person) ability to withstand or recover quickly from difficult conditions’. The word originates from the Latin *resilire*, ‘leap back’.

- 4 For example, the Future Proofing Cities project; see www.futureproofingcities.com (Accessed 9 September 2018).
- 5 For example, the Transition Towns movement; see www.transitionnetwork.org for the UK and www.resilience.org for the USA (Accessed 9 September 2018).
- 6 See <https://storiesofchange.ac.uk/node/308> (Accessed 9 September 2018).
- 7 'Interview with James Baldwin', AMRC, December 2014, <http://storiesofchange.ac.uk/node/308> (Accessed 9 September 2018).
- 8 Tier I membership costs £200,000 per year. Tier II membership is £30,000 per year. See www.amrc.co.uk/work-with-us/membership-model/ (Accessed 9 September 2018).
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- 10 Lea Mills was founded in 1784 by Peter Nightingale. It straddled a brook at Lea Bridge, just outside Matlock. See also blog post 'John Smedley Ltd, Lea Mills', 10 December 2014, <https://storiesfutureworks.wordpress.com/2014/12/10/smedley-lea-mills/> (Accessed 9 September 2018).
- 11 'Interview with John Smedley Ltd', Jane Middleton-Smith and John Mumby, March 2015, <http://storiesofchange.ac.uk/node/309> (Accessed 9 September 2018).
- 12 Ibid.
- 13 See 'Rumour Mill', www.johnsmedley.com/discover/community/our-commitment-to-sustainability/rumour-mill/ (Accessed 9 September 2018).
- 14 See blog post 'Gripple', 10 December, 2014, <https://storiesfutureworks.wordpress.com/2014/12/10/gripple-ltd/> (Accessed 9 September 2018).
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4

BUILDING AND BEARING WITNESS IN CALAIS

An interview with Grainne Hassett

Grainne Hassett with Irena Bauman

IRENA BAUMAN (IB): To start our conversation, what is your definition and understanding of resilience?

GRAINNE HASSETT (GH): I have some difficulty with the word ‘resilience’ because it has become so misused. It is hard to understand what it must mean. I would prefer to understand it as permanence: the things that endure, *the things that are important to support society*. I think the concept of resilience – or permanence for me – has a broad range of themes, which is similar to architecture itself, which is wide-ranging in general. It is not as a general discipline simplified in some way, its strength is its range.

IB: If permanence is a central concept of resilience for you, how do you think that is informed by your experience as an architect working with refugees in Calais, which obviously was anything but permanent? Is there anything we can learn about how resilience is created and generated, even in temporary places?

GH: I think it is still too early to reach conclusions, and while on one hand conclusions cannot be directly drawn, there *are* things that people did which can, perhaps, give us some ideas about what works well. There is a question of the remarkable resilience of people on the move generally, whether people are migrating for hope or for more tragic reasons, and it raises spatial, social and urban questions; in fact, the migration space is a space of questions. When I was in Calais I was trying to understand the value of being an architect on the site, as opposed to a builder, artist, plumber, activist or a person who was himself on the move, migrating and building his own shelter. I questioned what difference our training could bring, and my conclusion was that ultimately, it came down to very small things, but those things are the ones that are terribly important, and they are frequently missing – such as an understanding of where the sun is penetrating at different times of day, valuing that and defending that space; understanding that if a

building or an open space can capture the sun's power and warmth, its ability to dry people out, its ability to dry buildings out, its ability to raise the spirits – these things make a huge difference in the lives of people on the move in the fashion they were, and remain, forced into at Calais. It was important to capitalise on that – either through the envelope of the building or by trying to maintain sunny public spaces and not allowing buildings to overshadow one another. This might sound like an elementary lesson that one might give to a first-year architecture student, but it's so often missing, for so many buildings, and it is such a priority.

In Calais one would see people squatting gratefully for a few minutes in the sun to eat in the dark winter months – we must remember this was a camp with no electricity. It was important to understand that the capacity to give something very basic can make an impact on people's lives and induce joy, or provide a feeling of comfort. This could be as simple as making sure you build robustly in order to have a dry, warm and intact building. This is also the case when we think of things like fire strategy, of ventilation, preventing the-spread of disease – these are things that were already discussed in the seventeenth century – but they did not exist in Calais, there was a certain spacing of buildings that provided no ventilation, there was a lot of overshadowing, there was no sunlight penetration, there was a spread of disease, and more fatally, there was a huge and a constant danger and risk of fire. And then there was a spread of crime due in part to these conditions. To speak of more conventional architectural concepts: things like making space for public space were important. When there is a perception that we have a crisis on our hands, the management of that so-called crisis will not typically prioritise public space.

Communal spaces and public spaces are deeply important to people as spaces where some meaning can be found. That is something I noted within an hour of arriving in Calais on my first trip, to learn what I could do. I noticed what people built even though they intended to move on to try to reach the UK. There were self-built places of worship, self-built places to gather and to make music, and trading frameworks with shops, restaurants and temporary hotels (when I say 'hotel', I mean a shack). Even though people were moving on, sometimes within days, these were the things you would feel were constructed to find meaning, to create relationships, with each other and with society. These so-called soft values that architecture understands implicitly are deeply important to defend and to foreground. It was important to make sure that these social places were high, dry and safe from fire, with comparatively good thermal and acoustic insulation – in summary, a bit quieter, a bit warmer, a bit more peaceful. A tiny example of that is a choice that I made to make very strong and stable floor platforms for the community infrastructure we were providing (Figures 4.1 and 4.2), and put money into constructing them. This was an environment where the ground was very uneven and poorly drained, with sewage, floods, rats and dirt. You were constantly adjusting your body to try to take up this unevenness, through dirty puddles and sewage and damp, so to make a stable platform was a decision I made early on, and it was a decision I had to defend, often.

FIGURE 4.1 Community infrastructure, the Vaccination Centre, Calais.

Photo: Grainne Hassett

IB: Was it possible to engage with all the skills of the community living in Calais? Did people naturally contribute according to their abilities; or is there something from your experience that you can identify and tap into next time in order to encourage those skills to emerge earlier than they did in Calais?

GH: That question did not arise at all in relation to Calais, but it is worth exploring. The camp at Calais was a transit camp, so nobody living there would invest in anything that was in any way long-term. One has to respect that, and to respect that people may or may not choose to contribute to that involvement, so that choice is up to the people themselves. But we would find that as soon as we started building (Figures 4.3, 4.4 and 4.5), anybody else who was also from the building industry would start watching. You always knew who was in the building industry from the way they watched, and chose, or did not choose, to

FIGURE 4.2 Vaccination Centre interior, Calais.

Photo: Grainne Hassett

join in. If they were not interested in joining the team working, you needed to respect that, so you would just stop to ask where they were going, what they were doing, and what they used to build. But others would also immediately come in and start lifting pieces of timber; it really depended on the individuals and what they wanted to do. The question about using ‘local skills’ as a resource is raised in lots of different contexts, often very instrumentally. In this instance, it could be seen as an attempt to further diminish people who are moving in the migration space. You cannot talk about people’s skills in that way unless you regard them as ‘other’; I suppose that’s what I find difficult about the concept: it is poorly thought through and has become very simplistically rooted in architectural discourse, in architectural schools particularly.

FIGURE 4.3 Building the Youth Centre, Calais.

Photo: Grainne Hassett

FIGURE 4.4 Youth Centre detail, Calais.

Photo: Grainne Hassett

FIGURE 4.5 Youth Centre, Calais.

Photo: Grainne Hassett

IB: Did you see the process as an ongoing collaboration and co-production, or did you feel that you came to do a specific job?

GH: There was nobody in charge of the camp; we had no mandate and no power. To establish some framework of co-production, one of the most obvious places to start would have been to make material freely available for people to use as they needed, because people did not have cars or the means to transport or to access anything. But then, if you think of the next steps – what would have happened in that scenario is that the material would have been commandeered by a small number of people and a black market would have developed. Now that is not for me to police or have an opinion on, but it is the way things happen.

IB: Can you tell us about the mappings and drawings of the camp that you produced?

GH: It is really important to say that I did not produce maps with my students *at that time* and we did not make many representations while we were there. Although I could also say I did make mappings whilst I was there; mental mappings, all of the time. While I was there, I was really trying to figure out what was the use of architecture in the space and what architecture should do in the space. I quickly came to the conclusion that architecture needed to change as a result of the migration space rather than anything else. Within

myself, as I was walking everywhere, I mentally mapped things: how many toilets there were for how many people; noting that, for instance, all the toilets were located where the hard-core 'road' was located so the truck could come and clean them. This arrangement meant that women who were living further off this road could not travel to the toilets safely after dark, because the road was the only place with street-lighting. So I was recording the spatial implications of infrastructure choices, and then also noticing other things. For instance, how people from South-Sudan were building structures in contrast to people from Afghanistan and so on. I was mentally mapping everything, but I did not take many photographs – a few every now and then – but I felt very strongly about not surveying people, not photographing, not drawing their houses, not mapping, not bringing students to the camp.

I did ask some graduates who were safety-aware to come with me and build, and it worked well. But I felt strongly about students, academics, artists, ethnographers and others plundering the camp for academic material. People living in the camp had a right to privacy and peace. It was a year before I figured out that I needed to try to at least put down on a drawing what was around me at the camp. That is what I started doing, and that is when the mapping really started. That took me around another year, figuring out how to draw what was going on. I did not execute the drawings; I needed help, and so I asked a couple of students and employees of my practice and my graduates to work on them, based on my sketches, instructions and searching. The source material was based on my memory and photographs (because they had not been to the camp), and the memory of one graduate who had visited, along with photographs made by people living in the camp, online films, and any other information that was available.

When I tried to elicit information from former residents and other volunteers, it was clear just how faulty their (our?) memories were. The camp infrastructure itself also shifted a lot over time, so the date of a particular memory was significant. The usefulness of the maps also shifted, and I saw they could play a role in recording history, particularly when the camp was destroyed. Because parts of the camp were always moving, the maps had to freeze on fixed dates, and these dates were important. Specifically, the maps reflect the date of the destruction of the south camp in March 2016 and the north camp in October 2016. They became an important document for me: a record of a small town that was destroyed, one that had a connection with European law, with French law, that had implications for infrastructure provision and for building and human rights law; a place of actions by people, of national and transnational political situations acted out on the site; an intense moment in time; a spatial arrangement that I wanted to record. So the trajectories for the mappings moved as they progressed. The intention of mapping moved from just questioning what the use of architecture was in that space to the need to bear witness to and record what I had seen.

IB: Do you think that these records can cast light on future transient camps that may become a permanent feature of habitation? As a form of settlement, it was an example of bottom-up planning – it was made up as people went along, it was not provided by local authorities. Can the records help us understand how to do it next time, or is every occasion, every event, completely unique?

GH: No, I do not think it would help at all. Perhaps it might be useful for practical things; for example, you could check whether there were firebreaks, or whether toilets could be more carefully interspersed, but these are things that the UNESCO WASH standards and other NGOs have already figured out as well – any engineer or architect could figure that out on the back of an envelope. I do not think they can be useful in that way. Now, to discuss bottom-up situations, depending on the people involved, you get different scenarios. A 15-year-old boy is a very, very different kind of person than a trained engineer with a family. One comes from Afghanistan, and the other comes from South Sudan. They also have very different ideas of space and buildings, so the people themselves are the key: their own personal pressures, their intention to move on, their abilities, the availability of skills – all of these things formalise straight into an emergent politics. The other aspect of each of these bottom-up situations is that ultimately the Calais camp was controlled by forces that we did not fully understand, forces that we as volunteers did not have full access to – the smuggling market in particular, so the concept of bottom-up planning is not one I ascribe to without question.

IB: I have heard you speak about the experience of your work in Calais two or three times, and I was very struck by some of the things you said about the inadequacy of some of the construction systems that were developed by well-meaning architects and engineers trying to address humanitarian crises, which you found to be quite inadequate in practice onsite. I think we need to understand as designers about the reality of building, as you did, onsite.

GH: I would also see myself in the category of people who did badly! I made the decision to go out there and build very quickly. However, I also made a quick decision to adapt another design used by Shigeru Ban, and that led me to other decisions, because it was a race against time to meet a shipping deadline – I kept on making decisions about the materials and construction techniques we were using while designing/fabricating through donations. There was little time for testing, notwithstanding my own extensive experience. But at no point was I applying building regulations standards that I would have been applying in my own country. So I had already made a decision about something that would be lesser, and somehow I thought that would be acceptable in that environment, and so did everyone else. To be fair, we thought this was a temporary situation. But you always end up with less when you follow that logic. There were very few architects' buildings; the buildings were built by art students, landscapers, interested IT professors, refugees themselves, obviously, and a few architecture

students amongst other student workers, some carpenters and stage builders, as well as people who tended not to be employed centrally in the building industry, but who were in peripheral trades – plumbers, cabinetmakers, ships' outfitters, set design builders, off-season festival workers. They had many talents and much ingenuity that arose from that largely temporary world. What they did not have was a good knowledge of building fabric, or the interaction of structure and stability and fireproofing, breathability, condensation and ventilation.

So the culture of building in the camp was quickly and tacitly agreed amongst people who were genuinely trying to house large numbers fast, temporarily, as winter approached. What became an agreed norm were sheets of plywood with plastic sheeting flung over, and that was essentially what the structures were. As a consequence, they were of poor quality, created fire traps and contributed to ill health. I was unable to exert any influence on this culture as the place was somewhat in free-fall; this I regret greatly. The camp grew very fast, and a major part of that process was a culture of economy. The price of a building was established as a consequence of a fast-adopted belief that this was how we were going to do things. A small house cost the price of eight or 16 sheets of plywood, four donated palettes and two plastic tarpaulins, one made-up 'door', two hinges and one padlock. That was very regrettable, and I think it perpetuated the idea that things could be sub-standard there.

IB: Some of the prefabricated systems which are designed for either first or second response are intended to be used by people of low-level building skills who nevertheless can put up a more adequate shelter than what you describe. Was there any access to these kinds of shelters, and if so, did they actually work?

GH: Yes; we adapted a cardboard tube structure system that Shigeru Ban has developed. We found categorically *that it could not work in the field*, and I struggle to understand in what circumstances it could work. Where you have humans, you have water vapour when you are cooking, when you are breathing; and even when you coat the tubes with resin, as we did, I do not understand where and in what conditions these structures could work, other than in an exhibition or emergency accommodation inside a gym hall, or possibly in an extremely dry climate. They also failed under the wind load, and they failed as people hung things on them. People would naturally hang clothes on them – a fairly normal thing for people to do to, and you cannot control or prevent people from hanging things on structures in that situation. That is what I would have preferred to have been done better. We also used so-called sustainable panel systems (SIPs); we found that they are largely controlled by the logic of factory production and are very poorly adapted to actual buildings. For example, in that system there is no solution for the construction of an eaves overhang, and there is not really a solution for structure; you have to add structure to make the system stand up, so the spatial system loses its logic.

There is also no way of making windows or doorways, and the joints between panels have no weathering detail, so they let the rain in.

But to think about systems more hopefully – and this is really deeply ironic – after all of these successive failures, which I consider to be an important part of advancing practice-based research, we examined Jean Prouvé's prefabricated houses, and he had all of this worked out. I wish I had looked at his work beforehand. His designs had all the facts of assembly, of joint-ability, of robustness, of small-scale elements, of weather-strips and ventilation, of human quality. All of this is really quite remarkable; it is all there, but you would not notice unless you had been in that situation, with five men and a few tools, trying to build something in the field, and then watched it fail after weeks and months as the weather got at it.

IB: Students and young professionals are quite often very social-minded; they want to do useful things. I think interest in humanitarian architecture is growing, but there is also this element of aesthetics; beautiful designs which can be shown in lovely drawings, and can be very photogenic. How do we encourage students to focus more on the practicalities of what they have to work with, rather than the aesthetic outcome and only theoretical success?

GH: My position is that architecture is born out of the relationship between capital, technology and cultural ideas. I do not think that architecture is contingent. In architecture schools we tend to talk about the cultural ideas, the functional ideas, the urban solution – and these are important architectural ideas – but we should acknowledge the flows of capital, labour conditions and materials that would support this.

In other words, in a project narrative, for instance of a Wikihouse or a self-build situation, there is always a set of conditions about capital, labour and the production model within the market generally that underpins an arrangement of materials. We do not acknowledge that enough. So what I think we end up doing sometimes is describing the project to ourselves with a narrative that is only around one or two aspects. But if these self-building conditions cannot be found or are not understood, then the projects will fail immediately. Digital productions of material designs are always situated in Western societies and are often subsidised by a university, and very often result in an exercise that is essentially lab-based, producing shapes in materials with extremely fine tolerances that are not practical to use onsite. Fine tolerances are not even particularly central to building and how space works anyway. I want to widen the narrative around the project to encompass more of the forces that shape it; rather than seeing these forces as things that attack the project, they are the things that shape it.

DIALOGUE II

Community resilience and the right to housing

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5

SOCIAL ARCHITECTURES OF AGE-FRIENDLY COMMUNITY RESILIENCE

Lessons from 'niche' intentional community development

Helen Jarvis

Where and how we live: isolated inhabitants

Western societies are characterised by extensive urbanisation, longer life expectancies, and homes designed to emphasise individual private property. Hyper-individualised housing cultures make it difficult for people to get to know their neighbours, at a time when many more people live alone for much of their life. The way conventional housing rigidly separates social spaces and life-functions within and between single family dwellings fails to reflect the complex and varying realities of life-course transition and experience of ageing. Significantly, living alone and feeling disconnected from other people can impact negatively on well-being in ways that increase premature death (Grant 2016, p. 1). Alongside the damaging effects of loneliness, we are also witnessing increasingly precarious and polarised housing conditions. Structural inequalities extend beyond housing security to magnify the impact of multiple intersecting aspects of residential location, including poor access to transport, shops and healthcare; green spaces, meeting places, friends and family. In short, hyper-individualised housing cultures exacerbate unequal patterns of age-related dependence, and the ways that health and mobility can be disrupted, temporarily or permanently, alongside opportunities to participate and flourish in a local community of belonging.

This chapter asks what age-friendly planning and policy might learn from communities that are intentionally designed to combat isolation through a more communal way of life. Rather than presenting findings from one specific study, this chapter introduces a framework of key concepts within which to explore the well-being benefits of more collective and cooperative living arrangements. This builds on a well-established body of feminist scholarship identifying a wide range of urban and rural design experiments, such as on cohousing and ecovillages. These studies, which have been undertaken in different regions of the world since

the 1970s, typically draw attention to the social justice and well-being gains of collective housekeeping and common-use shared spaces (Fromm 1991).

Drawing attention to 'niche' intentional community development shows that issues of housing, health, social support and personal care intersect in the 'how' as well as the 'where' of domestic arrangements. Community-led initiatives are characterised by attributes of sharing, mutuality and 'togetherness' that are neglected in mainstream research, planning and policy. While current debate tends to conceive age-friendly communities instrumentally, top-down, this chapter draws attention to informal, relational processes of mutual health and well-being that formal structures largely take for granted, and may threaten to undermine.

Key concepts

Definitions vary, but intentional communities are widely accepted to represent a 'group of people who have chosen to live (and sometimes work) together for some common purpose beyond that of tradition, personal relationship or family ties' (Jarvis 2011, p. 564). Each intentional community has its own origin story and ethos: member-residents may live together under one roof or several, embracing features of sharing, mutuality, conviviality, energy efficiency and reduced consumption. Degrees of sharing vary from the highest level of income-sharing (what is often labelled a commune or kibbutz) (Manzella 2010) to looser arrangements combining private and shared resources (such as with cooperatives, eco-villages and cohousing) (Jarvis 2011; Kanaley 2000). For example, cohousing communities typically have around 20–30 households and may be exclusively for older people or for mixed-age residents. Each household has its own self-contained home, but shares in the management of the whole site and a shared 'common house'.

Fundamental to the definition of an 'intentional' community is a common purpose to live together, working to create a lifestyle that reflects shared core values. There has to be an active 'intention' to simultaneously reject the mainstream options and create a better alternative: this degree of coordination and common purpose is rarely achieved in conventional neighbourhood situations (Christian 2003, p. xvi). A 'people-first' approach differs markedly from conventional 'fabric-first' speculative housing, where efforts to 'engineer' social interaction by design superficially appropriate the language of community and belonging for commercial gain. Self-organising groups that work together to design, develop and manage a project have to nurture skills of mutual understanding and shared responsibility for supporting each other. This process of collaboration is recognised to increase community 'resilience' – typically understood as a measure of sustained capacity to utilise locally available resources in order to respond to, withstand and recover from adverse situations. While this concept is usually understood through vulnerability to natural disasters or global financial shocks, it can also explain how well communities function in response to the dramatic demographic changes they experience as their residents age (Scharlach 2012). For example, in a study of the Elder Spirit Cohousing community in the USA, Anne Glass (2009) found that 80% of senior

residents turn to neighbours rather than to distant kin to facilitate local self-reliance. Efforts to increase age-friendly resilience vary according to the balance struck between commitment to mutual self-work, and paid services and assistance.

Renewed interest in 'niche' intentional community development has to be understood alongside wider trends of political restructuring in the UK, Europe, the USA and Australia, aimed at shifting power to local citizens and community groups. Restructuring is evident, for example, in the European Charter on Shared Social Responsibility 2011, the UK Sustainable Communities Act 2007 and the Localism Bill 2011. The Australian Government's report *Ahead of the Game* (Advisory Group on Reform of Australian Government Administration 2010) similarly proposes citizen-centred service delivery. This agenda combines a broad vision of citizen empowerment and local self-government with measures to reduce budget deficits through public service cuts in an 'era of austerity' (Lowndes & Pratchett 2012). This suggests a paradox whereby policies of localism advance the language of empowerment while intensifying the market-based mechanisms that limit participation to those with financial assets (Jacobs & Manzi 2012, p. 42).

Growing interest in age-friendly design and governance recognises the combined significance of civic engagement and community empowerment. According to the World Health Organization, Age-Friendly Communities are communities: 'where policies, services and structures related to the physical and social environment are designed to support and enable older people . . . to live in security, enjoy good health and continue to participate fully in society' (Menec et al. 2011). There is a tendency for age-friendliness to be understood quite narrowly through the specific needs of older people, focusing on physical features of impairment such as wheelchair use, or mental/memory impairment, as with dementia. By contrast, this chapter advances a more relational understanding of the Age-Friendly Community (Lui et al. 2009; Murray 2015). The practice of ageing represents a changing experience of opportunities throughout life, which makes 'privileging' particular ages or stages of life, taken out of this relational context, unhelpful (Hopkins & Pain 2007). Here, ageing is viewed on a continuum of fluid, changing, interdependent age(s) and age-related experience and as the locus for a number of networks of relations: spatial, temporal, economic, social and technological. From an integrated, relational socio-technical perspective, for instance, the 'home' sphere (however culturally conceived) represents a primary 'anchoring point' that is at the same time embedded and implicated in multiple intersecting networks – that could also be conceived as infrastructures or capabilities of daily life (Gilroy 2008; Jarvis 2011).

Social architectures of intentional community

Residents who share a collective sense of purpose, who jointly participate in the design and management of their home environment, behave differently as a collective entity to those who inhabit aesthetically similar developer-led projects where residents are not bound together in shared endeavour (Jarvis & Bonnett 2013). Considering how intentional communities are consciously designed

(socially and materially) through locally agreed participatory processes, reveals the neglected significance of a 'social architecture' that underpins and corresponds with the 'hard infrastructure' that is visible and fixed in the material qualities of home and neighbourhood setting. While intentions vary in strength and focus (and they evolve or diminish over time), they always have some sense of stated ethos or core values. This is not true of 'top-down' or 'expert-led' speculative development. Consequently, exploring the inner workings of the intentional community helps shed light on processes of social organising and the social architectures that function through invisible affective dimensions (of well-being and motivation), inter-relationships (people and place), thinking, learning, practice and performance. It highlights 'intangible' qualities of sharing and ageing that distinguish the inhabited scale of intentional community from conventional streets, rural hamlets and master-planned estates. Whether or not intentional communities are primarily motivated by ecological or close-knit community goals matters little over time because in reality residents learn to share and reciprocate through the social architecture of living together.

The idea that housing is best provided and managed by those who are to dwell in it is not new: this has been the central thesis of participatory architects, notably John Turner, since the 1960s. According to this view, when residents control the major decisions and are free to make their own contribution to the design, construction or management of their home environment, both the process and the resulting environment stimulate individual and social well-being (Turner & Fichter 1972, p. 241).

For illustrative purposes, this chapter draws on two 'iconic' intentional community case studies; the Scottish 'spiritual ecovillage' of the Findhorn Community (Figure 5.1); and the Australian rural cooperative community of Moora Moora (Figure 5.2). Each formed in the 1970s, and each has since evolved beyond a purely oppositional enclave to connect internal interests and novel ideas with external support and collaboration. The intervening years have seen many changes and challenges, not least that founding members are ageing with their buildings: the introduction of a younger cohort has not always resulted in the intended diversity and harmony of 'old and young together'. The discussion draws on selected quotes from resident interviewees as snap-shot insights from a larger body of cross-national ethnographic data collected during discrete episodes as researcher in residence between 2008 and 2014 (Jarvis 2011, 2013, 2015b) (Figures 5.3 and 5.4).

The analysis also draws inspiration from extensive literature and evidence of intentional communities from different regions of the world (Jarvis 2015b; Manzella 2010; Meltzer 2000; Metcalf 1995). A common cultural feature suggests that individuals are motivated to form or join an intentional community to pursue alternative values and possibilities to mainstream society. This wider body of evidence makes an important distinction between those 'forming' community, as pioneers or early adopters, and those 'finding' (or joining) an established community (Christian 2007, p. 163). This disrupts the idea that self-management is sufficient 'to encourage the inclusion of outsiders, to break down barriers created by wealth and privilege (or knowledge and motivation), or prevent those that are already better off

FIGURE 5.1 Residents practising yoga at Findhorn Ecovillage, Scotland.

Photo: Helen Jarvis

and more dominant from flourishing at the expense of others' (Coote 2011, p. 85). Rather than to look for 'solutions' for Age-Friendly Communities that can be 'scaled up', the research indicates that further research is needed to deepen our appreciation of the *processes* of collective living and social learning. This is important because, as Irene observes of Findhorn: '[we] face exactly the same issues [as] in the outside world', but in a scale of 'social experiment' small enough for 'all (members) to have a voice and to look at new ideas and [if necessary] to change things around' (quotes from author's interview data).

The more we understand the social mechanics of sharing and mutuality in an intentional setting, the better informed we will be to tackle the rising epidemic of loneliness and isolation in Age-Friendly Community design and policy more widely.

From DIY to DIT: social learning in shared endeavour

There is a long history to the idea of ordinary people organising into groups and associations, acting on a voluntary basis to solve local problems. This form of direct action goes by a variety of terms, including 'self-help' or 'do-it-yourself' (DIY) community action or community organising. Recent years have witnessed a subtle but significant transition from individual action (the 'self' of DIY) to mutual

FIGURE 5.2 A typical self-build eco-home in the Moora Moora rural cooperative, Victoria, Australia.

Photo: Helen Jarvis

cooperation in ‘do-it-together’ (DIT) mobilisations. This suggests that the ascendancy of neoliberal policies and cultural norms which promote self-reliance and private property, paradoxically, reinforce a sense of loss and yearning for connectedness (Sargisson 2010). The significance of a resurgent ‘post-welfare’ DIT transition goes further than the size and focus of the action: it implicates a host of inter-personal skills (of social learning, recruitment, participation, encounter and enactment). This resonates with the distinction previously made between two periods of experimentation in collective housing in Sweden: ‘collectivist hotels’ (where meals and housekeeping are out-sourced) and ‘self-work’ (where residents take turns in small groups to cook and clean for their whole community) (Vestbro 1997). The argument is that cooperative ‘self-work’ promotes social learning through identifying with solidarity. This sense of collective responsibility and shared endeavour is what Joan Tronto (2009) claims we have lost to the prevailing neoliberal ideology of consumer citizenship.

A socio-technical approach

To help make sense of ‘intangible’ qualities and attributes of community resilience, it is constructive to draw inspiration from recent academic work on socio-technical

FIGURE 5.3 Methods of ethnographic research included participation in shared meals and common meetings.

Photo: Helen Jarvis' photo of Moora Moora ethnographic practice, 2010

regimes and sustainability transitions. This conceptualises contemporary housing dilemmas in organisational and relational terms, as 'a long-term, cross-sectoral issue, involving social, environmental and economic aspects' (Bergman et al. 2007, p. 1). It calls for solutions that embed behaviour change and innovation, emphasising regime changes that enable people to realise the kind of community arrangements that are stifled by mainstream market models of speculative housing.

A socio-technical approach offers a holistic and nuanced way of conceptualising the impetus of community organising, taking account of dynamic learning and transformative change. Social learning is tacit in the process of collective social organising in the intentional community. Richard Wolff (1998, p. 13) regards this as socially progressive because 'creating your own direct environment with other people is the way to escape alienation and promote solidarity, respect and mutual support'. There are other examples of DIT mobilisation beyond the intentional community: for example, there are day-nurseries where parents take it in turns to share in the work of collective childcare. This action reduces the fees they pay to the nursery, and co-production alters the relationship they have with the children, other parents and the paid workers at the nursery (Rix 2017).

FIGURE 5.4 Methods of ethnographic research included participation in shared working groups.

Photo: Helen Jarvis' photo of Findhorn ethnographic practice, 2014

The key point is that systemic innovation requires a broader understanding of the multiple motivations and shifts in behaviour and societal functions than is possible from a focus on technology alone. It emphasises the co-constitutive impact of disruptive new technologies and their institutional context, including shifts in behaviour and societal functions. Rather than attempting a method of modelling complexity, this approach highlights the interdependency of systems and the lock-in effects that inhibit alternative paths to housing and community development (Bergman et al. 2007, p. 3). In effect, this shifts the terms of debate from efficiency to purpose.

Bergman et al. (2007, p. 2) usefully locate the lessons to be learned from intentional communities in three dynamic and interdependent socio-technical systems: niche, regime and landscape. The landscape represents the slow-changing domain of 'world views and paradigms, macro-economy and material infrastructure, as well as the natural environment and demographics' (Bergman et al. 2007, p. 3). For example, because they are 'counter-cultural', intentional communities such as Findhorn and Moora Moora occupy a contradictory place in the popular imagination, attracting admiration and censure in equal measure. The regime represents the combined structural features and cultural practices that determine

property ownership, welfare initiatives and the intended ‘safety nets’ that variously restrict and redistribute access to private and public goods and services. In Findhorn and Moora Moora early pioneers typically built low-cost homes incrementally using recycled building materials to escape the treadmill of long loans secured by wages from full-time employment. Niche intentional communities comprise groups of actors and methods of building and organising collectively in pursuit of values that are typically at odds with the dominant national regime.

The significance of niche intentional communities is that they represent a potent seed-bed for innovation and transformative change, both social and technological, which are stifled by the mainstream regime. An ‘empowered niche’ is a niche or aggregate of niches which has grown powerful enough, in terms of resources and support, to challenge (and change) the dominant regime. To be flexible, adaptable (and potentially resilient) the niche tends to remain in a state of haphazard ‘incubation’. This highlights the significant value and intrinsic vulnerability of niche communities – relative to the dominant regime and landscape.

The socio-spatial significance of sharing

Previous research on the micro-social practices of intentional communities highlights the socio-spatial significance of sharing for mutual health and well-being (Jarvis 2011, 2015b; Jarvis, Scanlon, & Fernández Arrigoitia 2016). Three types of sharing are observed that distinguish intentional communities from conventional residential neighbourhoods; physical sharing (space, time etc.) by co-presence, purposeful sharing (collective governance and agreed goals) and instrumental sharing (reciprocal actions of care and assistance) (Ahrentzen 1996). Each type of sharing involves a complex blend of social and material geographies and a temporal shift – for example, from ‘fast capitalism’ to ‘slow democracy’ – in recognition that collaboration is a process to be cultivated rather than a product to be ‘achieved’ (Jarvis 2015a; Steele 2012). As Bob of Moora Moora observes:

ideas take time to take hold. We keep the ideas alive through informal discussions over cups of tea and workdays, and raise them again more formally at a community meeting. Circumstances change, people’s perspectives shift, things move slowly and organically. This lived experience of the alternative located within the inescapable mainstream produces an imperative to negotiate different values.

(author’s interview data)

Crucially, all three types of sharing are evidently intertwined and co-constitutive in an evolving process; the landscape of proximity and social mechanisms for

reciprocity and exchange are similarly subject not only to personal growth, but also highly reflexive deliberations and changing group dynamics.

The social architectures of physical sharing emphasise a real geography of proximity and embodiment. Some of the less tangible social practices of place-making are usefully explored with reference to what Georg Simmel claims for the qualities of 'living togetherness'. Writing in the early twentieth century, Simmel drew attention to the significance of a convivial scale of belonging that expanded upon the concept of *Gemeinschaft* (close-knit community) previously introduced by his contemporary Ferdinand Tönnies. Simmel recognised an affective 'being in togetherness' to *Gemeinschaft*, pointing to the universal occurrence in human development of a social pleasure in the physical company of others. He referred to this as *Geselligkeit*, or the 'play-form' of association. This play-form introduces novelty and disruption to otherwise routine exchanges. Pleasurable sociability can be further deepened through social awareness and the questioning of taken-for-granted values (neighbours talking through differences in their upbringing, for instance). He observed that such associations assume greater depth when they increase social awareness and meaning through dialogues that challenge taken-for-granted norms and values. To Simmel, the virtue of *Geselligkeit* is that engagement runs deep, beyond fleeting impressions (Sennett 2012, p. 38). This distinguishes the co-present 'habituated affiliation' of intentional communities with mainstream village-like housing schemes. Not only does the uniform design of speculative development rarely offer the human scale of clustering required for routine social interaction, but there are cultural and institutional barriers to meaningful dialogue and the development of trusting relations. This distinction is subtle but significant. It is about acting on a possibility to turn an idea into a reality where it is the process of this realisation which is as transformative as, if not more so than, the material outcome.

Mutual health and well-being

Cultures of purposeful versus instrumental sharing can be distinguished in terms of what it takes to build and sustain mutuality. This is what Diane Leafe Christian (2007) refers to as community 'glue'. This is evident in Findhorn in the network of support provided for residents in declining health and how this is managed in the community as an ethic of care. As Graham observes:

In Findhorn we work very hard to keep people at home in the dying process and have them die at home. For me that is a really important gesture. It's more than a gesture, it's key to resilient community. You can't call yourself resilient if you aren't taking ownership of the process of death. ... For me community resilience is about people's relationships – about developing mutual support through caring relationships. Living in community is about building relationships.

(author's interview data)

An ethic of care is echoed by Christian (2007) in her emphasis on high levels of connection. She identifies a wide variety of bonding activities, experiences, rituals and dialogue with a strong sense of community and commitment to an agreed purpose. This is not to say that the case study intentional communities have fully evolved social architectures of support. Irene explains that there is no immediate solution to the growing proportion of older people who rely on the Findhorn 'common purse' for their housing and social security (Manzella 2010). This issue will continue to be part of a 'big discussion' in community meetings for some time to come. She explains that:

collaboration takes a long time. Having been through a lot of these processes (since arriving here in 1985) on a deep level I trust that I have been looked after so far. I have a faith, looking back over my life, and it seems to lead onto the next thing. You kind of feel alive about it, rather than feeling processed, or stuck in a particular stage in life.

(author's interview data)

While Irene distinguishes the conscious deliberation of informal processes from formal policies, we also find evidence here that informal and formal networks of association are co-constitutive.

The residents of Moora Moora are similarly discussing issues of shared care in their community meetings. Indeed, in 2010 Moora Moora featured as the subject of an Australian Broadcasting Company documentary which suggested that it differed from mainstream 'later life' housing situations because of the way that it is learning about and adapting to ageing through internal processes of intergenerational dialogue. These processes map onto the complexity of what is in effect not one 'cooperative entity', but multiple layers of mutuality and interdependence (adult ages range from mid-twenties to early eighties). On the one hand, adaptation is suggested by capacity for self-built homes to be modified to changing needs (Brenton 2008). Thus, Peter and Sandra redesigned their house when their adult children moved out, dividing it into two in order to rent one half out to a young family, upgrading the other half by implementing 'lifetime home' features. Over the longer term they may consider the option of having someone with a nursing or home-help background to come to live in the rental half to support them through to an end-of-life stage of dying at home. On the other hand, material adaptations only go so far in a community setting built on high expectations of shared labour. Sandra points out that on 'monthly co-op work days' she increasingly worries about 'contributing less and being seen to contribute less' because she is no longer physically strong enough to chop or stack wood (author's interview data). At the same time, there is little evidence of such imbalance driving a wedge between younger and older residents. This is because, in practice, mutual support entails wisdom and know-how, memories and recollections, as well as physical tasks and fresh ideas. Reciprocity and fairness are not judged solely by narrow metrics of money, time or tasks, Moora Moora

has also developed a seasonal guest-work arrangement whereby residents can employ guest-workers to do some of the heavier tasks in exchange for meals and accommodation. In this way, intentional community research sheds light on inter-personal skills of social organising and collaboration needed for these big conversations to render tangible the many intangible costs and benefits that are excluded from mainstream 'rational economic' binary thinking on markets versus state.

Conclusion: intangible assets of sharing and ageing

This chapter begins to tackle the social and cultural barriers to less-ageist ageing. It does so by focusing on niche intentional community development as a setting and system intended to cultivate a negotiated ethos of sharing. The shared vision and values that motivate and propel self-organising projects are largely social, and by nature hidden from any simple reading of the material landscape. This highlights what is usually missing from the partial picture generated from design-led analysis, and what distinguishes pioneers of self-managed intentional communities from residents of 'master-planned' neo-traditional neighbourhoods (such as the 'gated' common interest community).

Until recently, age-related intentional community research, especially that focusing on senior and intergenerational cohousing initiatives, has tended to focus primarily on either design characteristics which promote social interaction (Torres-Antonini 2001; Williams 2005), housing and personal care provision for older people (Scott Hunt 2009), or the political economy of shared property (Sargisson 2010). While this has increased our awareness of the role intentional communities might play in delivering Age-Friendly Communities in the future, a gap remains in our understanding of the social phenomena of mutuality and collaboration in practice.

The chapter brings together existing research on relational ageing, socio-technical regimes, and the social architecture of intentional communities. Combined analysis shows that age-friendliness and community resilience are embedded and emergent: not only are these qualities cultivated from the bottom up, but they also evolve in flows of learning, being and doing, as co-constituents of knowledge and empowerment, enacting diverse connected communities of practice around the world. This raises a wider set of issues that we need to think about when considering interdependent patterns of formal and informal assets and associations in urban planning and social policy. It suggests that while proximity is necessary for residents to practice sharing, it is not sufficient as a means for mutual support to flourish. This warns against the possibility of engineering 'mutuality by design', looking for solutions and taking them out of the context of their collaborative social setting. As Nussbaum (2003, p. 53) observes, social interactions within any family, community or society are asymmetrically dependent, not least because 'people begin their life as helpless infants' and over the life-course 'encounter periods of extreme dependency', which may put them in need of care

by others. This asymmetry is evident in the dozens of niche intentional communities visited as part of the wider research. Variations occur within as well as between intentional communities, in response to individual and collective life-disruptions. Personal accounts of marital breakdown, mental illness and an ageing membership go some way to explain why the delicate balance of collaboration is not always mutual or harmonious. Nevertheless, the ethnographic illustrations provided in this chapter shed light on collective processes of social organising that need to be better understood if we are to design age-friendly communities and combat social isolation. Future research needs to acknowledge the significance of inter-personal skills and social learning: How is cooperation used as a fundamental tool for constructing socially connected, resilient communities? Alongside this, we need to consider how state and non-profit organisations can better enable and strengthen the social architectures that self-organising communities need to thrive.

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6

BUILDING ECO-HOMES FOR ALL

Inclusivity, justice and affordability

Jenny Pickerill

This chapter explores how we can (and in many places already do) build more inclusive eco-housing. This requires understanding the interweaving pressures that push up the price of housing per se, from capitalist processes, state/government processes, to social processes. It also requires identifying those costs that are excluded from current calculations, such as the unaccounted environmental impacts of housing, and lifetime and maintenance costs. Inclusive and affordable eco-housing is about basic rights to secure, safe, healthy and cheap-to-run shelter. Yet the current ways in which housing is 'costed' are both limited and limiting, and the processes of *why* and *how* we build houses create unaffordable housing. *Affordable eco-housing is an outcome of social justice.*

I am interested in how people are providing and building eco-housing for themselves, how they make a different reality, and what economic models are created in that process. Using examples from fieldwork of over 30 case studies of eco-housing in Britain, Spain, Thailand and the USA, and data collected through interview participation and photography, my work has examined the possibilities of inclusive housing. From this work, I am going to draw upon just a few examples in this chapter in order to critically examine what these different economic models for housing provision look like. While I am always full of hope that we can build a better world, I worry that we still romanticise and celebrate alternative projects rather than get to the detail of what they are really challenging or achieving. Of all the presumptions attached to eco-housing, the most pervasive, popular and oft-repeated is that eco-housing costs more than conventional housing, and as such it is expensive and unaffordable. This rhetoric frames eco-housing as a luxury for the wealthy, or a choice for the environmentally committed willing to make sacrifices. This perceived cost of eco-housing is one of the biggest rationales, if not the main one, used to explain its lack of uptake.

Affordability

Affordability is a measure of the capital (or income) of someone in relation to housing costs: in other words, whether the capital they have available will enable them to afford to purchase or rent a house. Such a definition, however, is immediately complicated by the different ways in which affordability can be calculated, what such calculations are intended to achieve, what is included, assumptions made in such calculations, and different interpretations of the causes of the lack of affordability (Wilcox 2006). Affordability of housing is calculated in a number of different ways: as the median gross income ratio to housing costs (purchase or rental) (Mulliner, Smallbone, & Maliene 2013); in relation to residual income after other basic needs have been purchased, such as food and fuel (Stone 2006); as a combination of traditional affordability ratios and residual income (Bramley 2012); and using the Housing Affordability Index (HAI) (Gan & Hill 2009), which calculates affordability across a range of different incomes in one region.

In the UK the government defines affordability as simply being below market rent. This approach makes no attempt to relate house prices to available incomes, nor to consider residual incomes in relation to other basic needs such as energy bills, food or travel. The cost of housing and its unaffordability is a pervasive and perpetual problem worldwide.

The financial costs of building

The financial costs of building are a result of the expense of all the elements required to build houses *and* the way in which houses are considered a reliable form of financial investment. The main factors are summarised in Table 6.1. In a contemporary house in England the two largest areas of expenditure are estimated to be materials (40%) and labour (34%). House ownership is often an attractive financial investment (Dorling 2014). In recent years the price of housing in the UK has increased exponentially, which means that homeowners benefit from house price appreciation while also having somewhere to live. The processes through which housing is understood as an investment are illustrated in Figure 6.1. A combination of factors leads to high land prices, which are fed into high house sale prices, combined with high demand (mainly through increased single occupancy, but also uneven growth); this creates a vicious (or virtuous if you are lucky enough to own a house) circle of ever-increasing prices.

There are therefore identifiable changes that can be made to existing ways in which housing is financially valued, building is permitted and houses financed. New economic models are currently being developed and tested, alongside community and communal approaches to eco-housing that have been trialled and new models of living and designing that have been tried. There are many examples of affordable eco-housing which are diverse, inclusive and potentially

TABLE 6.1 Main factors contributing to house costs

<i>Main factors contributing to house costs</i>	<i>Includes</i>
Land	Purchase
Planning	Applications, changes and appeals
Infrastructure	Roads, facilities, service provision (water, sewerage etc)
Professional fees	Architects' and designers' fees
Compliance fees	Planning and building control fees and tax on materials
Labour	All labour costs
Materials	All material costs
Market	The financial circle through which housing becomes an investment
Occupation	Includes energy running costs, state costs such as Council Tax

FIGURE 6.1 Housing as an investment in England.

Source: Jenny Pickerill

replicable. However, many of the existing examples of affordable eco-housing rely upon self-labour, government initiatives, large loans or free land. This chapter offers a supportive but critical analysis of the extent to which existing innovative approaches have overcome long-standing forms of exclusion and injustice. By examining a broad range of international material, it is possible to argue the extent to which it is possible to build eco-homes for all.

Definitions of eco-building

Ecological architecture calls for an understanding of the peculiarities of place, materials, cultural context, climate, solar and wind patterns, people's lifestyles and needs, and existing biodiversity. Common functions of an eco-house are to: minimise resource use (in materials, in embodied energy, energy requirements, water use), minimise waste (in materials, space, energy, leakage), and maximise use of renewable energy and renewable materials. Eco-building is a diverse and contested array of approaches, designs and methods. The term 'eco-building' can include zero- or low-carbon houses, low-impact developments, sustainable housing, green building, passive houses, zero-net energy housing and energy-plus houses. When discussing eco-building, it is important to distinguish between the *function* and the *form*. The function refers to the intended outcome of a design choice, whereas the form refers to the process by which that function is to be achieved. Thus the forms of eco-housing vary enormously, and include using highly technological systems or low-tech vernacular natural-build approaches to achieve the same function of low-carbon housing.

Building in affordability

Many eco-homes have been built on small budgets. At the same time there are numerous examples of expensive eco-homes that remain the preserve of the wealthy. Most aimed to reduce land, material and labour costs, and avoid professional fees and compliance costs – which is far easier to do in rural than urban areas. I am going to explore in more detail two examples of affordable eco-housing.

Example: Dignity Village, USA

Dignity Village has been built and run by homeless people to provide free housing in the city of Portland, Oregon. In 2000 a protest started in central Portland about the lack of resources available for the homeless; they squatted a downtown area of the city (creating a tent city called Camp Dignity) and negotiated access to an acre of land (Sunderland Yard, in the north of the city) in return for ending the protest. This access was initially only granted for eight months, and residents have had to make the case for their continued existence while the space remains under threat from Portland City Council (Busse 2003). Portland City Council also placed certain criteria on how the land was to be used – dividing the concreted plot into small sub-divisions of approximately 60 spaces between 9m² and 11m² (Sabatier 2006). It is classified as a transitional housing campground and must comply with State of Oregon campground building codes. It was intended that residents would not stay permanently, but rather use the village as a temporary stopgap on their way to getting permanent housing. Over the first five years it was estimated that 800 residents passed through the village. In 2012

Portland City Council determined that residents can stay for a maximum of two years (Slovic 2012). The housing structures are small and built from an array of scrap reclaimed materials – wood, straw, adobe, metal (Figure 6.2). The City Repair Project ran a training session at Dignity Village to teach natural building methods and collectively built ‘five houses in ten days’ (interview with Mark Lakeman, 2010).

The extent to which the homes at Dignity Village are eco-houses could be challenged. Although built of reclaimed material, few benefit from passive solar or have insulation. The straw bale structure was not being maintained and was suffering, with plaster peeling away on the external walls. Although natural building skills were taught to people in the early years, the high turnover of residents means that these skills are unlikely to be passed on. There are also problems with the site, in that it floods, there are fire safety concerns and, without ownership, there remains uncertainty about their future. The costs of housing were dramatically reduced by challenging all the factors that contribute to house costs (Table 6.2). However, the houses produced were not robust, and although the village gave homeless people much-desired autonomy and freedom, they do not benefit from comfortable eco-homes. While residents are often very happy to have a private individual space that is an infinite improvement on sleeping on the streets, as structures there is significant potential for more substantial construction. Overall, Dignity Village illustrates what is possible if

FIGURE 6.2 House at Dignity Village, Portland, Oregon.

Photo: Jenny Pickerill

TABLE 6.2 Summary of changes made by residents of Dignity Village to main factors contributing to house construction and occupation costs

<i>Main factors contributing to house costs</i>	<i>Attempted solution to reduce costs</i>
Land	Yes Provided free by Portland City Council
Planning	Yes Negotiated with Portland City Council
Infrastructure	Yes Provided free by Portland City Council
Professional fees	Yes None, City Repair Project offered training and support
Compliance fees	Yes Compliance with State of Oregon campground building codes is required
Labour	Yes Self-build and visiting volunteers
Materials	Yes Donated, reclaimed and recycled
Market	Yes Homes are not purchased or sold
Occupation	Yes Simple energy systems, but also limited levels of comfort available

people are given space and just a few resources to create their own home and their own way of living. It required the state to support and concede to homeless people's demands, but a negotiation allowed some leniency in the way building regulations were applied.

Example: LILAC, Leeds

The Low Impact Living Affordable Community (LILAC) in Leeds, England, was completed in 2013. Now home to 20 households, it is an ecological and affordable co-housing project in an urban space. Built on an old school site purchased from the local council in the middle of the Bramley neighbourhood, LILAC has a range of houses, from four-bedroom homes to studio flats. The houses are built from a novel form of prefabricated straw bale panels (Figure 6.3).

LILAC developed a new home ownership model in an attempt to decommodify the housing market, to 'develop an alternative based on economic equality among residents, permanent affordability, demarketization, nonspeculation and mutual co-ownership' (Table 6.3). LILAC set up a Mutual Home Ownership Society (MHOS). The intention was to ensure the houses remained affordable in perpetuity, costs were linked to ability to pay (income) and people would not necessarily lose their homes if their circumstances changed. The land and houses are co-operatively owned by MHOS (staffed by inhabitants of LILAC, ensuring self-governance). Minimum net income levels were set for different-size houses in the project in order to ensure that the collective value of 35% of each household's contribution would generate enough income for

FIGURE 6.3 Straw bale homes at LILAC, Leeds, England.

Photo: Jenny Pickerill

TABLE 6.3 Summary of changes made by LILAC to main factors contributing to house construction and occupation costs

<i>Main factors contributing to house costs</i>	<i>Attempted solution to reduce costs</i>	
Land	Yes	Purchased from the council in non-sought-after area of the city
Planning	None	Complied with full planning requirements
Infrastructure	None	Is connected to mains services
Professional fees	None	Hired architects White Design Associates
Compliance fees	None	Complied with all building regulations
Labour	None	Hired construction firm to build houses
Materials	Yes	Used straw bale prefabricated wall system
Market	Yes	Developed innovative Mutual Home Ownership Society model
Occupation	Yes	Will benefit from low energy costs because of straw bale construction and eco-design

MHOS to cover the mortgage repayments.¹ Thus, annual minimum household incomes currently range from £15,000 for a one-bed flat to £49,000 for a four-bed house. In effect, the higher earners subsidise those on lower incomes, and yet at the same time they do not forfeit their investment and the approach is fair because all inhabitants pay the same percentage of their income, as illustrated in Figure 6.4.

Costs were also reduced in other ways, although an architect and building company were hired to design and build the homes, the land was purchased directly from the council, and by using a straw bale prefabricated wall system, some costs were reduced on materials. The costs of construction were, however, not that different from other methods. A one-bedroom flat of 48m² cost £84,000 to build, at a cost of £1744 per m², while the average costs in England are £1200 per m². Of course, the difference is in the quality of the housing and the lifecycle costs, which will be considerably lower for residents of LILAC than those in conventional housing. Overall, LILAC did not fundamentally challenge as many of the existing factors contributing to house costs as Dignity Village did, or other examples of eco-housing such as Crestone in Colorado, and neither are the homes produced at LILAC as cheap. Crestone, for example, is a small town in rural south Colorado, and it illustrates the advantages of building on remote, cheap land, away from state surveillance, and the possibilities offered through self-build. The homes are exceptionally cheap because they are built on cheap land in an area with limited planning and building regulations, and many homes were self-built from cheap natural and reclaimed materials (see Pickerill 2016 for further discussion of these other examples). Yet, in all, the houses at LILAC are environmentally superior to the other examples, and the ownership structure is exemplary in facilitating a diverse and economically sustainable community. The LILAC model and the accessibility to those who do not wish to, or cannot, self-build and who want to live in a city, provide a replicable and novel approach.

Conclusions

Too often aspirations for ecologically benign futures ignore issues of cost, ownership and social equity. The costs of eco-housing are rarely fully calculated or understood. Community projects often rely on volunteers to either physically build or to financially contribute. Many projects rely on self-build or volunteer labour as the main way in which to make eco-building financially viable. For example, peer production and commons-based economies have not really done enough to help us understand how to provide basic housing for all. For those in Dignity Village and LILAC, the routes to building more affordable eco-housing have involved four key changes in how housing was built and occupied: (1) building on land which was available below market cost rate, (2) using natural and reclaimed building materials, (3) developing non-conventional ownership structures and (4) changed occupational practices. This, coupled with building in remote and rural locations, enabled many of the case studies I have undertaken to

FIGURE 6.4 LILAC's Mutual Home Ownership Society.
Source: courtesy of Paul Chatterton, University of Leeds and the publishers John Wiley & Sons

exist. There is therefore a need for detailed economic analysis of how some of these alternative projects are costed and the quality of the result. Following seven years of fieldwork, examining the economies and affordability of (eco)housing, I have identified ten approaches that would enable and encourage more affordable eco-housing:

1. *Price houses based on construction and lifecycle costs* – There is a need to understand the journey of costs through a building's lifecycle – the total operating costs over the lifetime of the building, rather than just at the moment of ownership exchange. These costs would not only include occupancy costs such as energy and water consumption, but also the costs of maintenance, an aspect often forgotten in evaluating the costs of using natural materials.
2. *Include all labour costs in construction costs* – When calculating labour costs, there is a need to include self and volunteer labour costs, whether that is in time, time away from other projects, lost income or the costs of training. Only by calculating the full costs of building can the financial costs of eco-housing be fully understood and compared.
3. *Develop communal land ownership structures* – Owning land communally enables cheaper use of that land. Community Land Trusts act as stewards of land, holding it in common and in perpetuity, therefore reducing its cost and making it available for affordable housing.
4. *Develop stakeholder ownership models* – The Mutual Home Ownership Society developed by Rodgers and used by LILAC offers real potential to ensure eco-houses are initially affordable to a diverse range of people and that they remain affordable in perpetuity. The way in which costs are linked to ability to pay (income) and the purchase of equity shares offer a real opportunity to design affordable eco-housing.
5. *Build quality affordable eco-housing* – Some affordable housing approaches create poor-quality houses. Poor design leads to higher running costs, but because these are poorly understood and not declared at time of sale, it often does not get taken into account by market prices. Affordable eco-housing should not require living on the margins of society or the loss of comfort.
6. *Create exemptions for eco-housing in planning legislation* – Planning regulations, and the ways in which they contribute towards high land prices, are particularly limiting for eco-house developments that might require space for passive solar designs and different building orientations. In order to encourage eco-housing, there is a logic in creating exemption from some planning restrictions. This is the logic of the Low Impact Development movement in England, which has advocated for rural sites of exemption for eco-housing and land-based livelihoods.
7. *Create allowable solutions for natural building in building regulations* – Some eco-building techniques, especially natural building, make it difficult to comply with standard building regulations. Building regulations are generic and can

include costly features that might not be necessary in eco-homes, especially self-built ones.

8. *Allocate land for self-build housing* – In an attempt to create housing for local residents, some councils in England have started to allocate land for self-build housing. These allocations are explicitly for eco-housing, and enable the state to support self-provision of housing.
9. *Use different materials and methods* – It is important for eco-housing advocates to be explicit about why some eco-construction approaches (particularly the more technological) can be more expensive than conventional methods. This enables builders and consumers to better understand the costs and benefits, and the diversity of approaches, of eco-housing. Some eco-design changes, like orientation for passive solar gain, do not cost a lot. If reclaimed materials or prefabricated systems are also used, costs can be significantly reduced.
10. *Build smaller houses with shared communal space* – The quality of an eco-house is more important than its size. If communal or public space is available, it is advantageous to build small individual houses, reducing the costs of construction and occupation. This approach, however, only really works where green space and community space are available.

These approaches should be taken on variously by different groups – architects, self-build groups, planners and government policy changes. Some changes require support to change resident demands and a change in occupational practices, while others need to be led by architects and planners, not just in how homes are designed, but also in how they are valued and costed. For example, when working to clients' budgets, architects can more explicitly articulate the benefits of taking a lifecycle cost approach and in using more ecological materials with improved thermal performance. It is this concerted effort, by all those involved in delivering new homes, which is required in order to start building affordable eco-homes for all.

Note

- 1 The figure of 35% was determined as appropriate by Rogers (2009), who designed the concept of an MHOS in his report on how to make housing affordable. It is also supported as an appropriate measure of affordability by Fears, Wilson, & Barton (2016) in their analysis of different affordabilities of housing across the UK.

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7

MICRO-RESILIENCE AND JUSTICE IN SÃO PAULO

Beatrice De Carli

Stop calling me RESILIENT. Because every time you say, 'Oh, they're resilient,' that means you can do something else to me. I am not resilient.

(#notresilient)

Introduction: resilience as a radical agenda?

This chapter examines the practices of urban dwellers and organised housing movements in São Paulo as a means to explore how community resilience may be associated with ideas of rights, power and agency. The aim is to contribute towards a transformative definition of community resilience, within a framework whereby a will to social justice is central, and resilience is geared towards supporting the needs and aspirations of marginalised groups.

Resilience is an elastic notion, and indeed a 'contested narrative' (Scott Powell, Kløcker Larsen, & van Bommel 2014), and while environmental sciences have highlighted its progressive potential, a range of debates around the broader usage of the term – particularly in social sciences – has focused on the political content of the concept. Within these debates, critics have emphasised that resilience thinking can elude notions of power and politics, and that resilience narratives often seem to evade the possibility that extant (social, economic, political and ecological) circumstances generating incertitude might be subjected to a wider structural critique. As a consequence, it has been observed that narratives surrounding community resilience risk developing within largely dysfunctional social framings, characterised by the unequal distribution of power and resources (Cretney & Bond 2014; Jonathan 2013; MacKinnon & Derickson 2013). In response, this chapter explores the consequences of thinking through notions of 'community resilience' ('resilience from below') in relation to marginalised urban

groups, their perspectives and their priorities. It questions how the ‘resilient practices’ (Petrescu & Petescu 2011, p. 65) of urban dwellers that have been excluded from the circle of citizenship can potentially challenge the uneven distribution of urban resources and opportunities in cities, and shape and frame radically alternative urban imaginaries. It does so by introducing the right to the city and spatial justice, considering their implications in framing community resilience, before going on to explore a case study: the occupation of a housing block in the centre of São Paulo, called Ocupação Marconi. The research described in this chapter emerged from the collaboration between a multidisciplinary group of scholars based in Brazil and the UK.¹ By highlighting the everyday practices of resilience of the occupation and some of the social connections fostered by the research project, the chapter considers its disruption to the status quo of urban planning and policy in the city, as well as its capacity to help formulate new imaginaries for housing, community resilience and the city of São Paulo.

Resilience and the right to the city

Recently, a wide body of theoretical and empirical work has examined the urban dimensions of justice, democracy, citizenship and community struggles, hinged particularly around the ideas of spatial justice (Soja 2010), the just city (Feinstein 2010) and the right to the city (Lefebvre 1968; Harvey 2008, 2012). These notions all recognise that urban struggles for social inclusion and citizenship are both *struggles in space* – embedded in the physical fabric of the city – and *struggles for space* – striving toward a more equitable distribution of resources and opportunities (Purcell 2002). The notion of the ‘right to the city’ is especially meaningful in this context, because it has been used by social movements as a unifying frame that connects localised urban claims and actions across the globe.²

The right to the city highlights the urban environment as a producer of social relations of power, and emphasises the right of urban dwellers to play an active role in the production of the city they desire and value. In his commentary to Lefebvre’s work on this subject, Purcell (2002) underlines two main aspects of this right: the right to appropriation and the right to participation. The right to participation points to inhabitation, rather than formal citizenship, as the basis for membership in society – including both the entitlements and obligations attached to membership. As the production of the city is the condition determining belonging, it is those who live in the city who can legitimately claim urban space, regardless of their formal status. The right to appropriation implies ‘the right of inhabitants to physically access, occupy, and use urban space’ (Purcell 2002, p. 103). This right is pursued through not only the occupation of already-existing space, but also the production of urban space so that it meets the needs and aspirations of inhabitants. In this twofold understanding, the right to the city provides a relevant reorientation to the definition of both urbanisation and justice, because it links questions of democracy and rights to spatial production – highlighting power and agency as inherently embedded in the micro-politics and

everyday practices of urban transformation (De Certeau 1984). Furthermore, it connects these principles to the use value, rather than market value, of urban space. This highlights the necessity to restructure the power relations that underpin spatial production, in order to achieve more just cities (Purcell 2002).

The implications of the right to the city for resilience mean that both the everyday, bottom-up attempts to deepen resilience and the transformative social end of the process must be put into focus. It means acknowledging the diverse vulnerabilities³ and adaptive capacities⁴ of different urban actors – namely, recognising that climate as well as political and economic disruptions impact different urban groups in different ways, depending on their living conditions and on larger forces affecting their ability to respond to crises. These forces are shaped by the uneven geographies of development – with the urban poor being inherently more exposed to risk than others (Allen, Boano, & Johnson 2010). This links to the agency of everyday practices of inhabitation, appropriation, and the processes that enable and disable bottom-up mechanisms to adapt and cope with incertitude. These processes take place through the negotiation of relationships across groups, institutions, places and scales.

Rethinking resilience through a right to the city perspective therefore implies a definition of ‘community resilience’ *that acknowledges that differential vulnerability is socially constructed – while also recognising the agency of marginalised individuals and groups in response to the uncertainties they experience*. This highlights the centrality of people’s self-organised tactics to cope with disruptions, as well as the need to support these tactics by challenging ‘the underlying structural issues of power and inequality that might be contributing to the presence of disruptions’ (Cretney & Bond 2014, p. 22).

In exploring the spatial practices of housing movements in São Paulo, the chapter interrogates how these might inform this definition of resilience, as a collective capacity to resist disruptions both by coping with stresses *and by pursuing alternative ways of making urban space*. The point of departure is that the concept of resilience bears in itself the potential to make more evident collective forms of inclusive citizenship and city-making that are based on micro-scale activism and the radicalisation of everyday life, and are geared towards more just urban relations at multiple scale levels.

Introducing Ocupação Marconi and the context of São Paulo Centro

The initiative that informs the discussion took place in August 2014 and focused on an informally occupied building known as Ocupação Marconi in the area of Praça da República, located at the heart of São Paulo’s central district. The centre of São Paulo comprises dozens of formerly vacant buildings that have been informally re-inhabited by organised housing movements. Although numbers fluctuate as the strategies of social movements change and forced evictions occur more frequently, it has been calculated that at the moment there are

approximately 35 occupied buildings in the city centre (mostly high-rise⁵), which illustrate the many struggles that have shaped inner-city São Paulo over the past two decades (Figure 7.1). The access to and control over spaces in the city centre of São Paulo is highly contested. Since the 1980s, as the local government encouraged the formation of new economic centres in non-central locations of the city, property prices in the central districts decreased. However, even if depreciating, properties still retained relatively high economic value based upon the assumption of future regeneration.

As a combined result of speculation practices and legal bottlenecks, 290,000 housing units were reported empty in 2010, 38,000 of which were in the region of São Paulo Centro (Earle 2012; Kohara 2013). Meanwhile, these new economic centres started generating increased property values in other areas across the city, contributing to urban displacement and to the peripheralisation of the urban poor. In the same period in São Paulo, about 130,000 households were deemed homeless and 890,000 households were reported living in inadequate conditions (Secretaria Municipal de Habitação, Prefeitura da Cidade de São Paulo 2010; Tatagiba, Paterniani, & Trindade 2012). Under these conditions, organised housing movements emerged in the mid-1990s as a key urban actor linking urban development dynamics in central São Paulo to wider claims for the right to dignified housing and to the city. Today, organised occupations in São Paulo Centro continue to highlight the existing disjunction between Brazil's progressive

FIGURE 7.1 Ocupação Marconi in inner-city São Paulo.

Photo: Gabriel Boeiras

housing policies and the living conditions of the most vulnerable layers of its population, while at the same time exposing tensions and inequities regarding the future of the area. On the one hand, inner-city regeneration proposals by the Municipality of São Paulo, such as the large-scale New Luz project, have proposed market-led urban development strategies targeting middle- and high-income groups. This has recently resulted in an increased number of forced evictions of occupied buildings and increased expulsion of lower-income dwellers from the inner city (Trinidade 2014). On the other hand, housing movements have used occupations as a way of producing shelter for the urban poor, and as a platform for highlighting the city's dramatic housing shortage and the need for truly affordable housing opportunities in accessible and well-served areas (Tatagiba, Paterniani, & Trindade 2012; Trindade 2014). Furthermore, occupations illustrate the possibility to develop innovative housing solutions that are based on rental mechanisms and collective self-build and self-management processes, and that contribute to urban regeneration by reactivating the social function of property⁶ as defined by the Brazilian Constitution (De Carli et al. 2015).

According to Trindade (2014), 105 acts of occupation were undertaken in São Paulo city centre in the period 1997–2012.⁷ The social landscape of these informally occupied buildings is multifaceted. Occupations themselves are carefully designed acts of civil disobedience that take into account the physical and legal conditions of the building, in order to identify optimal moments and sites for action. Once a vacant structure has been occupied, collectives are formed to agree on the building's own rules, and on the principles to be followed in its management.

Social movements initiating these actions are numerous, diverse and fluid. Most are grouped under either one of two umbrella organisations called UMM⁸ and FMP.⁹ Within these federations, individual social movements are more flexible constellations, each organising their own affiliates in response to specific positions, norms and governance structures. The occupations are not isolated actions, but supported by extended networks of civil society groups, non-governmental organisations (NGOs) and academic institutions providing legal, technical and social support for housing movements in their struggle to activate unused properties and reappropriate the city centre.

Ocupação Marconi was established in 2012 through the occupation of one of these buildings: Edifício São Manoel in Rua Marconi. Erected in the 1930s as an office block, the building had been emptying out since the 1980s, and in 2012 the only spaces in use were the commercial units on the ground floor. Since September 2012 Edifício São Manoel has been used by a housing movement called Movimento da Moradia Para Todos (MMPT). Today, the building is commonly identified as Ocupação Marconi, and is home to approximately 130 households, including a high percentage of national and international migrants.

In examining the spatial practices of social movements, this chapter considers how these might inform a transformative definition of resilience: as a practice that resists disruptions, by producing new imaginations of what is possible, and by enacting radically different ways of making urban space. There are two aspects to

this argument. The first is primarily reactive, and focuses on the capacity of micro-scale practices to cope with conditions of fragility and incertitude. The second is transformative, and emphasises the ability to instigate systemic change and to affect the structural issues that produced instability in the first place.

The case of vacant buildings occupations in São Paulo illustrates that the collective practices of social movements enhance the coping capacity of highly vulnerable urban dwellers by facilitating forms of solidarity and auto-organisation. At the same time, this case provokes a reflection on the extent to which occupations can draw transformative links between residents' micro-resilient practices and the structural factors generating inequality. The present focus is on how these links might be shaped through the production of new narratives and representations of the city.

Fragility and auto-organisation

In the period 2012–2015, Ocupação Marconi has produced many instances of auto-organisation through residents' self-building, self-management and self-organisation practices. As in similar cases across São Paulo, the occupation hosts a diverse group of residents, including a large number of migrants from Bolivia, Peru and Haiti, as well from Brazil's poorer Northeast and Amazon regions. Most dwellers share a history of extremely precarious living conditions and personal circumstances, including several instances of irregular employment, fragile family conditions, chronic illness, alcoholism and drug abuse.

As a means of coordinating such a diverse and complex group of residents, collective life in the occupation uses a floor-based organisational structure. Each floor is carefully administered as a semi-independent unit and managed by a designated floor representative. This allows for the efficient running of the communal toilets and of other self-started services such as rubbish collection and cleaning. At each floor, dedicated signboards mediate the communication among residents and with the floor representative – drawing attention to important events such as housing demonstrations and group meetings, as well as cleaning rotas and maintenance fee payment deadlines (Figure 7.2). This floor-based system is networked through weekly assemblies attended by all residents, and is supervised and coordinated by a building representative appointed by MMPT. This representative is in turn the interface between the building's residents and the leadership of the social movement. The relations between MMPT and other housing movements in São Paulo are also governed through a similar structure of nested forms of representation.

This hierarchical governance structure includes forms of centralised control, as well as instances of collective decision-making. Crucially, this system is instrumental to the development of collective practices that, in addition to providing for the building's maintenance, contribute to generating forms of mutuality and solidarity among the occupation's vulnerable residents (De Carli & Frediani 2014).

FIGURE 7.2 Signboards in the building's stairways.

Photo: Beatrice De Carli

The experience of cohabiting spaces and facilities, sharing norms and regulations, and – to an extent – making decisions together about the building's functioning creates opportunities for addressing personal vulnerabilities at a collective scale. This enhances residents' capacity to deal with everyday challenges. This function of the building as a collective coping device is particularly important in light of the exposure to risk and the conditions of material scarcity experienced by most residents in the occupation.

During the interviews conducted in 2014, several residents highlighted, for instance, that the building's self-governance supported the emergence of alternative economic networks and livelihood opportunities centred in the building itself. Two stories exemplify this point.

The first concerns a woman named Maria.¹⁰ When Maria entered the occupation, she was homeless and unemployed, and was caring for her daughter by herself after her husband had been arrested. In a moment of severe difficulties, the occupation was able to provide her with a vital support structure. As happens in different social movements, MMPT pays a salary to those who perform a key role for the functioning of affiliated occupations, such as the building coordinators. In Ocupação Marconi, these roles include the coordinator of the communal kitchen located at the second floor of the building, which was initiated by the building's leadership in the early days of the occupation (Figure 7.3). This can be used by residents upon the payment of a small fee, but is also meant to provide

FIGURE 7.3 The communal kitchen.

Photo: Gabriel Boeiras

food for collective purposes. Maria acquired the role of kitchen coordinator in 2012. At the time of the interview, this was her main source of livelihood. During her working hours, she could take her daughter to the building's self-organised nursery – started by the building's coordinators as a way of supporting single parents living in Ocupação Marconi (Figure 7.4). Beyond the essential sustenance provided to Maria, the kitchen also played a wider part in the occupation's social and economic life – demonstrating the importance of the building's location and its self-managed collective spaces in nurturing alternative economic flows. At the time of our interviews, the kitchen's functioning was largely based on relations between residents of Ocupação Marconi and local street market vendors, who would give away their unsold produce at the end of each day. This contribution was key in allowing the kitchen to provide free meals to the nursery's children, as well as to prepare lunch boxes that would then be sold to informal workers living in other occupations in the area – creating a self-sustaining micro-economy.

A second instance of the role played by the building as a coping device is provided by Emmanuel, a young man of Haitian origins living in the occupation with his partner and child. Driven to the occupation by the desire to find a place in the city, like many others Emmanuel did not become involved with MMPT on the grounds of his political views, but rather on the basis of his concrete needs and aspirations for the future. During the interview, he explained that living in

FIGURE 7.4 The nursery.

Photo: Gabriel Boeiras

the occupation had allowed him to have a place to stay in the city, as well as to create new livelihood opportunities and provide for his child. He highlighted that the position of the occupation at the heart of São Paulo's central district – in proximity to formal and informal livelihood opportunities – had been a key factor influencing his decision to live there rather than in one of São Paulo's peripheral settlements, notwithstanding the high density and the material difficulties that characterised the building. This choice was supported by the presence of collective facilities, including the communal kitchen and the nursery.

Importantly, Emmanuel also underlined that the access to job opportunities on the informal market was often made possible by the social and spatial organisation of the occupation. Both the general signboard on the ground floor and floor-specific signboards distributed throughout the building's common spaces are often used by residents to post job adverts and highlight opportunities. Like Maria, Emmanuel reported that the sharing of spaces and facilities was therefore an important device to overcome his personal difficulties.

Narrative disruptions

The social and material production of the building is a mechanism to experiment and render tangible the claims of housing movements, beyond the scale of individual buildings. While providing for the material needs of residents,

occupations simultaneously prefigure a radically alternative urban future, and strive to open up new spaces of participation and dialogue with civic actors and local authorities, in order to advocate for urban reform and policy change at scale. A key factor in this process is whether social movements are accepted as legitimate actors in the struggle for dignified housing. This is based on the acknowledgment of their role as representatives of broader networks and interests, as well as on their inclusion in formal decision-making arenas, such as the Conselho da Cidade (City Council).

During the research, the leadership of Ocupação Marconi often stressed the importance of public recognition in order to open up a productive dialogue with the municipality. One of the strategic aims of the occupations as highlighted by Marconi's leadership concerned the attempt to change the public's attitude towards occupations, and fight against the stigmatisation and criminalisation of housing movements and individual residents in São Paulo. In a polarised social and political context such as today's urban Brazil, over the past two decades the media have often portrayed occupations as criminal acts, abuses of private property, and places of extreme illegality. Throughout the interviews, the residents of the building, and particularly the occupations' leaders, were always explicit in addressing the stigmatisation of social movements as a way of delegitimising the claims of the urban poor, and a fundamental limitation to their capacity to affirm their own housing rights. At the same time, it is also evident that the diffused stigma cast upon occupations hinders the possibility to understand the complexity of power dynamics happening within the occupations themselves. This includes situations of marginalisation and exploitation experienced by residents, and the conditions of subordination and destitution that many face while living in São Paulo's vacant buildings.

Against this background, in the period 2012–2015 the residents of Ocupação Marconi devised a range of ways to creatively disrupt and reverse such stigma. Among the most notable mechanisms was the construction of an image of social innovation for the building. A key example was provided by an article published in the mainstream media, terming Ocupação Marconi as a *laboratório social* (social laboratory). The article described Edifício Manoel as a 'self-sustaining building': 'The social laboratory, as this 1939 building in Rua Marconi ... has been called, has hot showers, Wi-Fi, nursery, a lounge, a library, a communal kitchen, a 24-hour concierge and strict rules of coexistence.'

Crucially, this narrative of positive material transformation, and social innovation and experimentation, was tactically used by the movement in the judicial process that aimed to return the property to the building's private owner. At the same time it was part of a wider exploratory process that aimed to test occupations as a means of advancing alternative forms of production of urban space, based on participation and collective self-management.

A second example of the narrative practices enacted by occupations to engage in dialogue with the city is the diffuse use of the buildings' façades as large-scale urban signboards – highlighting the role of the occupation in relation to the rest

of the city. In Ocupação Marconi a building-wide banner stated: ‘Enquanto você não acorda, a gente luta para você’ (‘Whilst you don’t wake up, we are fighting for you’) (Figure 7.5). This banner, like others across São Paulo Centro, reminds the city’s users and passers-by of the housing struggle of residents. It highlights that occupations are not only to provide shelter in the short-term, but also serve to advocate housing solutions for the urban poor.

Such narrative processes and devices play an important role in increasing residents’ sense of recognition and belonging. At the same time, they are key instruments of mediation – tools intended to open up further mechanisms of engagement with the city government and judicial structures. In the period 1997–2012, informal occupations allowed for the creation of 3500 social housing units in the city centre of São Paulo, obtained through the relabelling of occupied buildings as housing of social interest (Tatagiba, Paterniani, & Trindade 2012). Two such buildings were included in the national social housing programme *Minha Casa Minha Vida*. Although these can be understood as small advances in the context of São Paulo’s housing shortage, at the same time such transitions from informality to formal housing solutions highlight the potential of occupations to introduce policy innovations and have an important impact on current modes of urban housing production. The decriminalisation of social movements

FIGURE 7.5 The banner on the building’s façade.

Photo: A.A. Frediani

is an important precondition to such process. The innovative role of occupations in reshaping inner-city São Paulo plays out in multiple fields and is not devoid of contradictions. As highlighted elsewhere (De Carli & Frediani 2014), there are important limitations to the extent to which occupations manage to sustain alternative ways of using, producing and governing urban spaces – as well as to their capacity to transform the social, political and economic context within which they are situated. However, in the context of resilience thinking, these experiences also highlight the urgent need to deepen the understanding of dwellers' agency and adaptive capacity under conditions of extreme inequality. Similarly, this highlights the need for new ways of supporting these capacities, particularly through the production of alternative narratives about these experiences. As much as the practices themselves, the forms of knowledge production utilised to discuss occupations are also crucial.

Conclusions

Ocupação Marconi raises fundamental political questions about the form and future of cities, as well as about what a commitment to 'community resilience' might mean in the contexts of highly skewed distribution of power and resources – and the ways in which academic scholarship might engage with this process. The definition that emerges here is in line with Cretney's terming of resilience as the 'strength of communities' (Cretney & Bond 2014) and the capacity of 'alternatively organised communities' to restructure 'the very framework that determines how things work' (Zizek 1999, p. 199). Within such a definition, the experience of São Paulo's social movements organising around housing and citizenship suggests a number of themes for further reflection on the relations between community resilience and social justice.

The case of Ocupação Marconi demonstrates the need to relate localised, community-based processes to the larger-scale dynamics of uneven geographical and urban development. This involves questioning what constitutes a disturbance to 'community resilience', at which scale disturbances are mapped, and by whom. Urban development patterns in São Paulo highlight that the social processes that shape and hinder community resilience are largely located at the scale of urban, regional, national and transnational power relations (MacKinnon & Derickson 2013). If such large-scale social-spatial processes impacting on communities are not addressed, the notion of 'community resilience' risks reproducing a sense of 'responsibility without power' – whereby marginalised urban dwellers are expected to generate mechanisms of self-reliance to cope with unjust dynamics they cannot affect. These disturbances can be identified through collaborative forms of research that foster horizontal learning, evaluation, and critical reflection. As I have shown elsewhere, in this context there is an important role to be played by participatory action researchers in making visible the cross-scalar causes and impacts of differential vulnerability, and in doing so collaboratively with those who most

acutely experience inequality. This can help strengthen grassroots critical learning and self-reflection processes as they emerge (De Carli 2016).

Learning from the case of São Paulo, it can be argued that the resilience of vulnerable communities is largely enabled/disabled by complex interactions between politics and everyday practices. These interactions are shaped through the negotiation of cross-scalar relationships across groups, institutions and places. In order to transform the life uncertainties affecting individuals and groups, 'community resilience' needs to be similarly understood and fostered through a cross-scalar politics of relations that mobilises reciprocity and solidarity across different areas of society. This will challenge the disempowering local, national and supranational processes. São Paulo occupations clearly demonstrate one way for communities to engage with scale – linking personal and local aspirations to citywide imaginaries, urban claims, social movements and external actors. The relations that residents of Ocupação Marconi built with both the media and academia, and the links that Oficina Marconi developed with sectors of the local government, are an effective example of the form these cross-scalar politics may take. Participatory, action-oriented research operating within this field can contribute to exposing and highlighting the adaptive capacities of urban dwellers and the agency of their everyday practices. Furthermore, it can act as a mediator of relations – building links to and interfaces with wider networks that can influence policy- and decision-making.

A final conclusion is to acknowledge the need to organise around persistent change, rather than aiming for stability. This relates to the principle that persistent change characterises ecological and social systems alike. Small changes can produce large-scale transformations in the long term. Ocupação Marconi in particular demonstrates that in order for incremental change to affect deep structural imbalances, this needs to produce shifts in the conception of what is possible, and to prefigure alternative forms of city-making. This idea links to the notion that dwellers' 'capacity to aspire' is a key resource required to contest and alter the conditions producing their marginalisation (Appadurai 2004). *This needs to be accompanied by a capacity to engage with complex decision-making processes and policy frameworks.* In the case analysed here, these were cultivated through 'citizenship workshops' and other pedagogical initiatives carried out by social movements within occupations and across São Paulo. Academic research working in solidarity with these practices and building links between local actions and large-scale urban imaginations can support the emergence of new narratives of the city, representations of the future and forms of practical intervention.

Acknowledgements

This chapter is based on the paper De Carli (2016), Taylor & Francis Ltd, and is reprinted with kind permission of the publisher.

Although the theoretical framing and the thoughts reported here are those of the author, the chapter is also grounded in a collective reflection the author shared with Alexandre Apsan Frediani of University College London, Francisco

de Assis Comaru and Ricardo de Sousa Moretti of Universidade Federal do ABC, Welita Caetano and Manuel Moruzzi of Movimento de Moradia Para Todos, and Benedito Roberto Barbosa of União dos Movimentos de Moradia.

This work was supported by University College London, the Bartlett Faculty of the Built Environment under the Visiting Research Fellows programme 2014, and by the University of Sheffield under the Santander Research Mobility Award 2014.

Notes

- 1 The participatory methods employed in both the design of the project and its implementation were of great importance. The project was designed in dialogue with Benedito Roberto Barbosa, an activist in the São Paulo Union of Housing Movements (UMM), Gaspar Garcia, a lawyer at Centre for Human Rights, and Welita Caetano, a housing activist then affiliated to MMPT, who was one of the leaders of this occupation. The research was linked to a postgraduate module titled 'Insurgent Urbanisation' at the Universidade Federal do ABC (UFABC). This experimental module was taught collaboratively by the author together with colleagues from both UFABC and University College London. It included a six-week live component led by the UK team involving students in a hands-on investigation of occupied buildings in São Paulo Centro through mapping and other participatory methods. For more information about the participatory methodology of this research, please refer to De Carli (2016).
- 2 An example of this is provided by the Global Platform for the Right to the City: a large-scale initiative by organisations from Latin America, Africa, Asia and Europe, including 'NGOs, networks and forums, academic institutions, public sector, social movements, foundations and international organizations'. The objective is to advocate for policies and actions aimed at developing 'fair, democratic, sustainable and inclusive cities' by the United Nations and national and local governments: see www.righttothecityplatform.org.br (Accessed 9 September 2018).
- 3 In resilience literature, vulnerability encompasses 'exposure to perturbations or external stresses, sensitivity to perturbation, and the capacity to adapt' (Adger 2006, p. 270).
- 4 Adaptive capacity addresses the capacity of a social-ecological system to cope with contingencies – 'to be able to maintain or even improve its condition in the face of changes in its environment(s)' (Adger 2006, p. 270).
- 5 Numbers vary depending on sources. In 2013, the newspaper *Estadão* claimed that the city centre of São Paulo included 47 informally occupied buildings: see <https://sao-paulo.estadao.com.br/blogs/diego-zanchetta/intelectuais-e-sem-teto-criam-ocupacao-sustentavel/> (Accessed 9 September 2018). At the time of the field research, it was commonly agreed that the number ranged between 30 and 40.
- 6 The Social Function of Property is a central theme of the City Statute (Law 10.257), a federal law aiming to provide land access and equity in large urban cities. The Social Function of Property stresses the priority of use value over exchange value, and of collective interest over individual ownership rights.
- 7 Although the occupation of vacant land and buildings was not a new phenomenon in São Paulo, before the mid-1990s this had predominantly taken place in the city's peripheries. Over the years, inner-city buildings have been at the centre of intense contestations between housing social movements, private owners, and different local governments and public sector bodies (Earle 2012; Kohara 2013).
- 8 União dos Movimentos de Moradia (Union of Housing Movements).
- 9 Frente da Luta por Moradia (Front for Housing Struggles).
- 10 The names of residents have been altered to protect their privacy.

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DIALOGUE III

New pedagogies of resilience

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8

TACKLING CLIMATE CHANGE

Comparing studio approaches in Sheffield and Cape Town

Ranald Lawrence and Kevin Fellingham

Sheffield and Cape Town

The urgency of climate change, and the collective responsibility it entails, requires a greater understanding of cultural approaches to environmental change and its interaction with diverse social contexts. This requires an extension of our understanding of climate change from the scientific to the socio-cultural realm. Cultural understanding implies investigation that extends to the human scale, revealing challenges that are often overlooked at a national or intergovernmental level.

Supported by the Worldwide Universities Network and the British Academy, research undertaken at the Universities of Sheffield and Cape Town sought to examine how climate change is approached as a design input for urban transformation in different cultural contexts. An exchange of academic staff from both institutions permitted comparison of work addressing local responses to climate change undertaken by design-research studios in each university. The research explored the extent to which approaches to resilience are interchangeable, or need to be grounded in local conditions.

The research began from the starting point that conventional design solutions vary between cultures according to local conditions (Anderson 1984). However, climate change presents a common global challenge, and this implies that systematic design approaches may be necessary to overcome the often arbitrary nature of local solutions, in order to successfully address the multifaceted nature of the problem in our ever more interconnected world. On the other hand, participative design processes are required to address the needs of a range of demographic groups and societies with different values and resources, which need to be reconciled to local conditions. The former approach runs the danger of ignoring realities on the ground, while the participatory model, in foregrounding

the resolution of local conflict, may fail to address the global nature of climate change. Education therefore plays a pivotal role in reconciling these two models of design, acting as a filter through which systematic approaches can be tested against the limiting empirical conditions of a given locality.

The Sheffield studio's work focuses on adaptive strategies that mitigate the consequences of climate change, informed by evaluation of existing case studies, dynamic simulation modelling of student projects, and assessment of future climate scenarios. Sheffield represents a cultural context where there is a popular political will to devote time and resources to mitigating climate change, and various codes set out minimum standards for response. The Cape Town studio, in contrast, focuses on a context of rapid urbanisation, skills shortages and a low tax base, where the state is unable to provide basic services such as electricity and water to many citizens. A lack of reliable data about energy consumption means that environmental decision-making is often intuitive, while the peculiarities of the unequally developed economic and political context require a more nuanced approach to engagement with communities regarding the need for adaptation.

This chapter will first examine climate change in South Africa, and how the pedagogical approach at the University of Cape Town builds upon a history of addressing social and spatial apartheid. This is contrasted with Sheffield, where a more technical approach to design pre-construction is supported by the latest technology and software, but problems with the performance of completed buildings are easily overlooked in a context where many of the consequences of climate change have yet to be experienced, and remain relatively abstract.

The impact of climate change in South Africa

Temperatures in Cape Town reached 42°C in March 2015 – the highest since records began. Wildfires ignited in Table Mountain National Park burned through 15,000 acres of land. The summer fires are part of the natural process of the regeneration cycle of the native *fynbos* which covers the Cape peninsula – this fire was the worst seen in decades, but the City Fire Service and local volunteers limited the damage to only 13 properties. At one stage, with flames licking the edge of the farm, the historical collection of furniture at the oldest wine estate in South Africa, Groot Constantia, was removed for safe keeping. This is one of the latest and amongst the most acute examples of a changing climate and the still heavily tourist- and agriculture-reliant economy of the Western Cape coming into conflict, but there are other longer-term examples of systematic conflict.

According to the 2014 statistics, the wine industry in South Africa directly or indirectly employs some 300,000 people in the Western Cape, contributing R36.1 billion (£2 billion) to the gross domestic product (GDP) of the region (the contribution of the industry to GDP has increased by 10% per annum for over a decade) (Wines of South Africa 2014). However, wine cellars need to be maintained at a long-term average temperature of 13°C. Gradual seasonal changes

in temperature are acceptable, but rapid diurnal fluctuations damage wine irrevocably. Currently, daily mean temperatures fluctuate between 11.9°C in July and 20.4°C in January and February, with average highs of 26.5°C.

It is not only the seasonal fires that threaten wine production. Rolling blackouts, euphemistically referred to as 'load shedding', are increasing in frequency, interrupting the flow of mechanically chilled air that is essential to the maturing process of wine. In the 1990s the South African Government prohibited the state electricity provider Eskom from investing in new power infrastructure in an effort to deregulate the industry; however, no private investors came forward to build new power plants. Rolling blackouts were introduced in 2007 as demand outstripped supply for the first time. The blackouts are phased so as not to disproportionately affect any one residential area, however the impact on industry adversely impacts the lowest-paid. In 2008, multiple trips across the power network forced production to cease in major gold and platinum mines across the country (McGreal 2008). Banks and other services industries are also forced to stop work. Despite construction of new power stations, the re-commissioning of mothballed coal power plants and the introduction of diesel-powered generation at peak times, power cuts have persisted. In November 2014, Eskom could only provide 24GW of electricity, 4GW short of demand and a full 22GW short of a stated operational capacity of 46GW (England 2014). This shortfall was blamed on shortages of diesel, low water reserves in hydroelectric facilities and unplanned maintenance. Depending on the severity of the rolling blackouts, the economic cost in terms of lost productivity is estimated at R20–80 billion (£1.1 to £4.5 billion) per month (Lipton 2015).

Typically, power outages hit in the late afternoons at the hottest times of the year, and it is in the major centres of employment that the economic cost is really telling. There is an urgent need to rethink the electricity-dependent model of office provision for the financial service industry in the centre of cities like Cape Town and Johannesburg.

Energy use of buildings in South Africa

As post-occupancy data for energy consumption in South Africa is not routinely collected or published, research into energy performance of individual buildings is highly speculative. What is certain is that the total energy consumption of the South African building stock is increasing rapidly, currently accounting for 31% of electricity consumption and 28% of carbon emissions in the country, with emissions from commercial buildings projected to rise from around 30MT of CO₂ per annum to over 70MT in 2050, or over 50MT assuming ambitious efficiency savings (Milford & UNEP Sustainable Buildings and Climate Initiative 2009).

While the construction of new buildings will have a big impact, more often than not it is concrete-framed buildings from the 1960s, 1970s and 1980s that are refurbished and expanded to supply demand for office space in the city. The most

intensive part of this process in terms of energy consumption is the replacement of the skin with new glass and panel-based façade systems with 'improved' thermal performance. In reality, this means higher standards of insulation and increased airtightness, both of which can contribute to greater demand on air conditioning systems in summer.

Teaching environmental design at the University of Cape Town

Energy consumption is therefore an issue which students are encouraged to address at the School of Architecture at the University of Cape Town. The school takes a cohort of around 85 students at undergraduate level and 40 at Masters level each year. Masters students develop 'thesis projects' that are similar in resolution to what would be expected of Part 2 students in the UK. The school lacks the more advanced technological resources that are available in Sheffield (e.g. environmental modelling software), but the studio-based teaching approach is similar. Students discuss their projects in a group setting with their tutors, contributing to the review of their peers.

The direct way in which Cape Town students are encouraged to address the architectural consequences of environmental change builds upon a reputation of addressing seemingly insurmountable social problems such as income disparity broadly divided along racial lines. Projects often tackle complex sites in the Cape Flats, dealing with informal settlements, transport interchanges and other places of economic exchange, as well as service provision for the urban poor. There is no room for overly idealistic thinking. Many years of experience have led to a critical pedagogical approach to engagement with disenfranchised communities, where the emphasis is on ensuring that unrealised projects do not cause further disengagement with and distrust of planning professionals and local government, but instead that future architects and planning professionals are equipped with as complete a knowledge as possible of the challenges these communities face, so that students are better prepared to practise with confidence in their future professional careers.

Louwrens Botha's thesis project examined the motorway buffer zones between Cape Town and Somerset West – devised in the apartheid era as racial dividers – and the potential regenerative inhabitation of the spaces around them, in order to knit the urban fabric and society back together (Figure 8.1). By mapping different existing demographics and land uses (residential, agriculture, water, infrastructure etc.), the project identified connections that could be made in the short term, taking advantage of flyovers and bridges to knit communities back together, while also envisaging new forms of transport in the longer term that might replace the concrete fortifications of the twentieth-century highways. The provocation is that while a resilient design philosophy may imply thinking about structures that can survive intergenerational change, some spatial structures are so rooted in the conditions of the past that they can reinforce spatial and social exclusion. In this context, infrastructure that might otherwise be viewed from a neutral engineering perspective may need to be actively destroyed before regeneration can happen.

FIGURE 8.1 Louwrens Botha's re-imagining of motorway infrastructure.

Source: Ranald Lawrence and Kevin Fellingham

In contrast, Sophie Zimmermann's project to re-use Christiaan Barnard Memorial Hospital explored the potential of refurbishing existing buildings to increase residential diversity and reduce energy consumption in the city (Figure 8.2). It took inspiration from a generation of thermally massive concrete buildings constructed in the 1960s and 1970s, which reflect a more intuitive architectural design response to climate (designed according to rules

FIGURE 8.2 Sophie Zimmermann's exploratory drawing of the Christiaan Barnard Hospital and precedent analysis, Cape Town.
Source: Randal Lawrence and Kevin Fellingham

of thumb such as sun paths, prior to the development of sophisticated energy modelling) that may be more resilient to warmer temperatures and unreliable power generation in years ahead. If internal temperatures can be maintained at close to comfort levels for prolonged periods without space heating or cooling systems, limited power resources or backup systems can be focused on supplying essential IT and other systems needed to maintain operations (essential in a hospital, but also desirable in other sectors to reduce economic disruption).

This kind of student-led research into pressing environmental issues is necessarily reactive – there is a lack of reliable data about energy consumption of buildings in use, and projections of future energy supplies and climate are hampered by large political uncertainties. Students' work is a reaction to problems as they arise, in contrast to Sheffield, where a wealth of information means that students can speculatively address potential problems and propose solutions that are implementable before lasting damage is sustained.

Teaching environmental design at the University of Sheffield

At Sheffield, students are actively engaged in the gathering of data that can better inform how we think about designing buildings that can be used more efficiently in future. For example, in 2015 Hannah Towler's third-year dissertation project investigated whether improved awareness of energy consumption on the part of building occupants can encourage them to 'load-match' energy demand to production, by utilising energy-hungry household appliances such as washing machines and cookers when there is spare generating capacity. The case study, LILAC, was a 21-unit community housing development in Leeds with a sizable photovoltaic installation, but the research also explored the constraints imposed by occupancy patterns, peak loads and public misconceptions about energy use on a much wider, national, scale (Figure 8.3).

Alex Johnstone's fifth-year research explored the environmental performance of the Alfred Denny building at the University of Sheffield, constructed in the 1960s. His thesis investigated the embodied carbon content of the existing superstructure of the building, representative of similar concrete-frame buildings from the period, and explored potential refurbishment options (including the impact on operational energy consumption and carbon emissions) (Figure 8.4). Alex's research concluded that the structure can be re-used in an energy-efficient manner – a conclusion with serious implications for the demolition of similar buildings across the UK, where it has been demonstrated that new non-domestic buildings often consume up to five times as much energy as they are designed to (De Wilde 2014).

Comparison

The availability of data and improved technology allows students at Sheffield to simulate and quantify the performance of their work in a manner that is not

FIGURE 8.3 Hannah Towler’s infographic of photovoltaic generation and demand at LILAC. The curved line represents the availability of solar power in relation to the energy consumption of household appliances (represented by different-coloured bars).

Source: Ranald Lawrence and Kevin Fellingham

FIGURE 8.4 Alex Johnstone's analysis of the structure of the Alfred Denny building.
Source: Ranald Lawrence and Kevin Fellingham

possible in Cape Town. Students can model design solutions using dynamic simulation software packages such as IESve, and numerically quantify predetermined design objectives for environmental performance.

However, there are dangers in an over-reliance on technology to teach environmental design. It is a relatively straightforward task for an architecture student to model his or her project and simulate low-energy, even-carbon neutral, performance. The modelling process is biased towards the application of active environmental solutions relying on operational system efficiencies rather than passive or free-running design strategies, the benefits of which – due to their dynamic daily and seasonal variation – are much more difficult to quantify. Analysis is usually conducted on a completed design with ‘black box’ computation employed to assess performance over a notional period of time. However, if the inputs to the software are not fully understood, they can be easily manipulated to simulate unrealistic performance scenarios. A common example is occupancy patterns – it is often assumed that an office building will only be inhabited between, for example, 8a.m. and 6p.m., but the presence of cleaners and caretakers will require environmental systems such as lighting to be on 24 hours a day. This may lead to a profound skills deficit, with students lacking the basic skills necessary to critique and develop their work in an iterative manner as they design. The design process becomes instead a ‘stab in the dark’, as the post-rationalised analysis of a simulation model does not inform the design strategy. Similarly, a focus on technological solutions overlooks the social and political dimensions of adaptation that will be required given the future warming scenarios we face.

In Cape Town, graduating students are in high demand in local practice, where they are actively engaged in developing alternatives to the energy-intensive air-conditioned mode of living in this climate. House KW by Kevin Fellingham Architects is a refurbished Cape Dutch house in the Bo-Kaap area of the city which has been transformed into a modern live-work unit, reinterpreting its historic use with studio and office left and right of the main entrance, and living and dining spaces to the rear. This project was used as a case study for students to engage with the design of passive environmental solutions for local urban microclimates. A small internal courtyard is shared with the neighbouring property to naturally cool the interior through passive draught ventilation, while the bedrooms reach up to the roof to access a terrace overlooking Table Mountain. This creates a natural air path for the purging of warm air from the inside, supplanting the need for air conditioning (Figure 8.5). The property is currently being monitored to record outdoor and internal temperatures and to quantify the thermal effects of the natural ventilation strategies that have been adopted.

At an urban scale, urbanisation and resource depletion will present more challenges to the already creaking infrastructure of Cape Town in the years ahead, including increased pollution and shortages of clean water as well as electricity. Design solutions at the building scale, learning from the vernacular traditions of the past, may be the most appropriate way to develop an architecture more resilient to

FIGURE 8.5 Student model of design detail for House KW in Bo-Kaap, showing thermal stack design.

Photo: Ranauld Lawrence and Kevin Fellingham

both the natural and man-made challenges of the future. Technology can breed dependence, and eventually lead to a loss of tacit knowledge.

In a Western context, a dependence on technology, together with new modes of production such as building information modelling, has gone hand in hand with the division of the construction industry into ever more discreet specialisms that make it more and more difficult to challenge orthodox working practices, and prevent the collaboration that makes low-tech cross-disciplinary solutions possible. Students at the University of Cape Town – less reliant on technology – are rebuilding their understanding of vernacular techniques, and modifying these skills to help the process of adaptation to an uncertain future.

Conclusion

The latest available data from 2007 suggests that electricity use within cities in South Africa accounts for 44% of total consumption across the country, an increase from 41% in 2004 (Sustainable Energy Africa 2012). In 2006, Cape Town as an urban area was responsible for emissions totalling 27 million tCO₂e, compared with 47 million tCO₂e in London (Kennedy et al. 2009). South Africa is still in a process of urbanisation, and due to its dependence on electricity predominantly generated by coal, it is the twelfth largest emitter of greenhouse gases in the world. In this context, deepening understanding of the root causes of poor energy performance at a building scale is vital.

In comparison, electricity generation by coal has reduced by 74% in the UK over the past decade (Evans 2017). As a result, the consequences of increased electricity use by environmental systems in UK buildings may seem less significant. However, there is a real and present danger that the benefits brought by decarbonisation of the National Grid could be undone by design solutions unfit for our warming climate.

It is therefore important that architects of the future learn to proactively engage with the consequences of climate change in different contexts. Research-led teaching provides opportunities for students to contribute to the development of built environment policy. Students can test their newly developed specialist expertise through engagement with policy 'influencers' at both institutional and governmental levels, as well as in practice. There is much to learn from the transfer of expertise and knowledge between countries like the UK and South Africa, both in terms of technical understanding of energy performance of occupied buildings, but also of the need to make the most efficient use of existing buildings and infrastructure that can be adapted to meet future requirements.

Cultural differences, impacting on building design and pedagogical approaches, have led to the development of diverse tactics for adaptation to climate change, ranging from the reactive to the speculative – each with implications for the other as well as across diverse contexts. This requires recognition that environmental design is about more than solving perceived short-term problems, but about developing resilience to climate change that can make a real and long lasting contribution in different social and economic contexts.

The work undertaken in Sheffield and Cape Town teaches us that different cultural conditions give rise to different approaches. Speculation in the absence of local knowledge leads to design approaches that are often arbitrary, failing to address problems that call for a more reactionary approach, but on the other hand, speculative propositions fore-armed with the benefits of local knowledge can unlock design solutions that address previously insurmountable problems across cultural boundaries.

The key is to learn from each other.

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9

ARCHITECTURE OF MULTIPLE AUTHORSHIP

Beyond the academic year

Sandra Denicke-Polcher

Live engagement with the city and its inhabitants

For several years now, an architecture research initiative at The Cass School of Art, Architecture and Design, London Metropolitan University, has been exploring the possibilities of socially engaged live projects¹ within the undergraduate design studio, bridging boundaries between academia, practice and the city. As deadlines of live projects with real collaborators and partners are not defined by the academic calendar, the studio involves different student cohorts over several years during different phases of a project, ultimately enabling an ongoing live and adapting engagement with a place and its community. Participation in these projects, both for tutors and students, suggests an alternative method to more established models of architectural education based on hypothetical cases and constructed in the classroom, where students look at social and political conditions from a distance and only take a speculative angle without real engagement with the city and its inhabitants. In contrast, the new architecture studio at The Cass focuses on real projects, which are of a public nature and often located in deprived areas with non-paying communities as their 'clients'. 'Architecture of Multiple Authorship' reflects an engaged pedagogy, where students and tutors' are dedicated towards supporting local community resilience. The continuous engagement with a place and slow passing on of skills to community members grows knowledge over cohorts; not only does it achieve community resilience, but students also learn skills of resilience as a group.

The live projects undertaken at The Cass are close to the practices of socially engaged art, described as typically being delivered 'through collaboration, participation, dialogue, provocation and immersive experiences ... [with a] focus on process and [seeking] to embed themselves within the communities among whom they work' (Froggett et al. 2011). All live projects within this studio are defined

by a continuous relationship between the students and shifting members of a community group, traditionally called the 'client'. These live projects do not have a singular commissioner, but their client body is made up of a network of partnerships between local community members, local stakeholders, our students and the tutors. Through these projects we aim to move from the traditional role of the architect as a service provider – an 'agent operating for' – towards an architect who becomes a collaborator and partner – an 'agent operating with' (Petrescu 2012). Through local engagement at a human scale, students acquire the tools – an empathic and flexible working attitude – to plan 'resilient architecture'. This can take the form of physical space, social engagement or spatial strategy development to accommodate current realities. This way of developing architecture creates spaces which are adaptable to the fast-changing needs of our cities and their inhabitants, and develops architecture which is able to adapt to changing realities. As students do not act as 'service providers' and are encouraged to experiment, these projects are best placed within the university context where students are offered opportunities to be involved as part of their studies, and are supported by university-funded academics who are professionals as well. The research has shown great benefits for projects and communities. If care is taken to meet the learning outcomes each year, students can also benefit. This method of teaching could become a respected new pathway to accreditation, recognised both by other schools of architecture and the Royal Institute of British Architects (RIBA).

Case study project: re-imagining Hayes

A case study of an ongoing project situated in Hayes, West London demonstrates how a community project can be run over several years, adapting to changing conditions and benefiting both the communities and students. So far, three student cohorts have worked on different phases of the project, each year redefining and developing the year's brief, questioning the scope of work, finding their 'clients' and discussing the architect's continuing responsibility in the public realm. In the first year, the focus was on *making*. Students constructed a 1:1 Mobile Hut and explored the potential of social enterprise in Hayes (Figure 9.1). During the second year, students concentrated on developing programmes that imply architectural structures and are supported by local communities. Students organised a series of events, which gave rise to the creation of different clubs and fragmented building proposals on the local Austin housing estate. In 2014–2015, the students moved to the High Street in Hayes in order to ensure the continuation of the successful programmes developed in the previous years and to expand participation to a wider community, with an emphasis on developing building proposals for the High Street. In 2015–2016 students worked with Hayes Town Partnership to focus on one of the successful proposals situated on an industrial site beside the canal; developing design options for a canoe club.

FIGURE 9.1 Mobile Workshop in Hayes by Studio 3.

Photo: Sandra Denicke-Polcher

Academic year 2012–2013: made in Hayes – identifying the stakeholders

Some will have seen an orange mobile hut in different London locations; first in Hayes, West London, in front of an unused community hall. The corrugated transparent structure with an orange membrane shining through contrasted surprisingly well with the faint yellow corrugation of a large rundown shed as the backdrop. As an indicator of ongoing change in Hayes, this shed has now been replaced by Portakabins, which are used as community rooms. Hayes was the first location where the students based their self-built structure, the ‘Mobile Hut’, in order to explore potential social enterprise opposite the Austin Estate. These enterprises included paper works and soap and candle making. In contrast to local preconceptions, the students observed that the Austin Estate has active and engaged residents. They challenged the local residents through a series of ‘making’ events and developed an agenda for the following year’s student cohort to work on, re-imagining a town hall for the estate. After travelling to Hayes, the Mobile Hut returned to its second location on Holloway Road, Islington, to be part of the *Architecture Cass Summer Show*, and a few days later to the opening of the *Art and Design Cass Summer Show* in Aldgate. Even when the academic year had ended, the students continued showing commitment, which enabled easy transition into entrepreneurial practice. They set up a small exhibition inside the Hut showing the results of the year’s work as part of a larger project in Hayes to be continued by a new cohort of students.

Covering all learning outcomes during the academic year, students designed the Mobile Hut for a real client – a group called ‘Friends of Abbey Garden’, who paid for the construction materials and are now using the Hut. In addition to the conventional skills students acquire in the design studio (e.g. design process and representation), this cohort learnt about presenting their work to a real client, which differs from presenting to an academic audience. Student feedback has shown that particularly the weak students thrive and find reasons for doing well when confronted with real clients and the 1:1 making of a project. We also tested a larger office situation, where student teams took over designs from other students for detailing. They went through all working stages in order to jointly build the structure at 1:1. This project of ‘multiple authorship’ taught the students that detail matters and encouraged great team-building skills.

Academic year 2013–2014: re-imagining a Town Hall for the Austin Estate through events

The positive response of the local residents of the Austin Estate to the making workshops initiated an exploration of the traditional building typology of a town hall in the contemporary context of the ethnically and culturally diverse housing estate and its fragmented residential community. Students gained the trust of the community by continuing what the previous students had started, organising more events – this time directly on the estate – and exploring potential programmes in order to actively engage the residents. These programmes, which derived from local interests – such as making music, playing chess and sewing – became very specific to the locality (Figures 9.2, 9.3 and 9.4).

The activities were not the aim in itself, but a platform to trigger participation and identify local interests to grow future programmes leading to the design of resilient architectural spaces. Students learnt to trust that their professional engagement can achieve positive change through the design of spaces, which can be inhabited in a long-lasting manner. These can be physical spaces, but also social engagements and urban strategies. In Hayes, the events led to the creation of different clubs on the estate: a youth band, a board game club, and most successfully, a sewing club with growing popularity beyond the estate and the academic year. The students learnt that the success of these clubs made them effective settings for resident gatherings, and debates about public life and their needs. Students learnt resourceful judgement: sometimes setting up a club proved successful enough to improve the residents’ everyday lives and impacted positively on the perception and use of the physical spaces they inhabited, and no new building at extra expense was required. They discussed the architects’ continuing responsibility for their projects in the public realm and how to hand over responsibility for the clubs to the residents or – if that was not yet possible – to the next student cohort. Students not only developed their own briefs, but gained confidence in taking the initiative to fund the realisation of their ideas. Student Susan Kudo successfully applied for a council grant to support the Sewing

FIGURE 9.2 ‘Roaming Musical Instruments on the Austin Estate’ by Reham Elwakil.
Photo: Sandra Denicke-Polcher

Club. Her project continued over the summer, with the Sewing Club becoming a constituted group.

In addition to this direct work with the residents, students designed and proposed architectural fragments to accommodate the clubs, which – together – formed larger schemes. This prepared the third year of the project, focusing on designing a community space for the successful programmes developed by the students in previous cohorts.

Academic year 2014–2015: re-imagining the High Street in Hayes

This academic year aimed to enable the continuation and combination of the most successful music and making programmes from the previous year. Their

FIGURE 9.3 'Dance Studio on the High Street' by Htike Yadana.

Photo: Sandra Denicke-Polcher

contemporary meanings were re-imagined for the town centre, expanding access beyond the residents of the Austin Estate to include a larger community, moving into the nearby High Street area and its backyards:

The Austin Estate lies adjacent to the High Street, facing the blank walls of the loading bays and car parks, but also brick walls screening courtyards used for storage, play, access to homes and the sale of a large selection of shoes. On the other side of the High Street the yards form a network of neglected wilderness, parking, dumping grounds and workshops. These spaces are connected to the High Street through alleyways, and have the potential to create new links – to the Austin Estate, and to the schools and residential areas beyond.

(The Cass, Projects 2015)

The brief asked students to engage with the local community and test how spaces for making or music performance could offer a new reading of the city centre with the High Street at its core. They organised 'action days', using personal skills to test potential programmes and sites for their proposals. As in the previous year, these activities became a platform for participation, which brought people and potential clients together on the High Street through events such as a gramophone installation, a printing studio, a paper engineering workshop for children, a dance installation (Figure 9.3) and parkour. The links

FIGURE 9.4 ‘Austin’s Stage’ by Ania Folejewska.

Photo: Sandra Denicke-Polcher

between this and last year’s programme went beyond the physical. Student Milana Raic, for example, continued the work started by Susan Kudo, working with the women running the Austin Estate Sewing Club.

The studio addressed the more challenging aspects of Hayes’s transformation from a vibrant but economically struggling centre to a rapidly growing Crossrail hub with prescribed aspirations: students’ proposals included Emily Wheeler’s bicycle workshop, re-imagining how bikes which had been prematurely purchased by the council and remained unused in a storage could be used by the community. Student Eglantina Hoxa negotiated a proposal for a canoe club for a canal inlet and adjacent industrial site with the site owner. This had the potential to become a large regeneration area in Hayes.²

Students have gained experience in working with and presenting their work to a wide variety of audiences, ranging from local residents and shop owners to politicians and representatives of Hayes Town Partnership, as well as exhibiting and discussing their work and what the future may hold for Hayes at the local library.

Running projects beyond the academic year: academic restrictions

As these projects are taught in the undergraduate design studio, tutors must make sure that students not only engage with the real world, but that they obtain the skills set out as academic requirements. At the end of the academic year, the work produced needs to comply with module specifications and meet learning outcomes. The research has shown that this is possible as long as the tutors ensure that the resulting project is valuable for the community and the students' academic achievement is assured.

Since 2000, we have worked on live projects with our students and researched best practice with the aim of optimising learning outcomes and student experience, as well as optimising project outcomes for our clients' satisfaction. In the past, live projects within the studio were structured to run for one academic year only, to ensure the continuity of the learning outcomes each year. Within a period of eight months, the studio completed projects with the same cohort of students who started the project. Working with real clients and at the same time satisfying a wide range of learning outcomes meant that projects often felt rushed and remained at the scale of a room – for example, the Mobile Room for London and the Community Stage in Kronberg (Denicke-Polcher & Khonsari 2014). Although projects often continued beyond the academic year in order to be completed (e.g. the Community Stage in Kronberg), students rarely benefited from the continuous involvement, and if they did, it was often outside academia.

This time limitation of one year was difficult for the project itself, as live projects depend on the reality of a place, and have social, economic and physical significance. Furthermore, deadlines of live projects with real collaborators and partners are not defined by the academic calendar, particularly with the open-ended nature of projects with non-paying clients.

As the case study in Hayes demonstrates, The Cass has therefore set up a studio structure enabling involvement of consecutive student cohorts during different phases of a project. This ongoing live engagement with a place and a precise set of communities, partners and collaborators is a working method which can contribute to community improvement by being agile, as it puts students in a position to respond to the specific needs and agendas of communities over time. Throughout this process, students learn that adaptability and flexibility are essential skills for their future profession.

Benefits to students

The projects run within the studio teach students a high degree of adaptability. Every year students learn different skills driven by the live engagement with the city and its environment. As students are testing their projects continuously against real conditions – for example, presenting their projects to local partners and stakeholders or organising 'action days' – they experience changes in the project's environment directly. Through the engagement with a real place and

real people, the need to adapt and respond becomes a natural necessity based on a student's duty of care instead of being an academic response. This way of working allows students to connect to real-life issues and act on these, as well as to learn essential skills of adaptability and being responsive, which are key in order to react appropriately to the growing challenges of our urban environment.

Feedback from students has demonstrated that the skills learned in the studio (e.g. self-initiating projects and seeking funding) have been valuable in order to find work, and highly appreciated in times of low employment opportunities. On leaving the studio, the students feel equipped with a skill set to develop self-initiated projects, and are encouraged to explore and establish new ways of working. Being flexible and adapting to changing situations makes students fit for alternative practice: it gives them confidence in their future professional lives and taking entrepreneurial opportunities to develop new and individual initiatives within the city for its citizens.

Benefits to communities and the architectural profession

Ongoing engagement with a place also empowers communities. Students gain a presence in the place and establish new networks amongst communities – all required to make comprehensive and often radical changes within the city, which include physical as well as social engagements. This teaching method enables students – future architects – to become trusted partners and collaborators through continued and open-ended engagement. This model is the opposite of an architect who is a service provider by appointment with a limited time resource. If students are learning this engaged way of working during their studies, participating in ‘what’s happening on the ground’ and being ‘conscious of the role of their work in creating ... the worlds we inhabit’ (Gibson-Graham 2008), they will be able to take this commitment into a fulfilled and productive professional life. The current developments observed in practice and how young architecture practices operate show that this engaged working attitude can influence and widen an architect's scope of appointment and help to secure work, even in times of low construction.

Shortening architectural education through university-based practical experience

The additional value offered through this method of teaching is a new structure for architecture education, which sits between an academic context, the city and practice, while still based at the university. By attending the Live Projects Studio, the year-out experience recommended by RIBA (which students usually take between RIBA Part 1 and Part 2) can therefore happen during academic education. This not only provides benefits to students and communities, it could shorten architectural education in the UK, while still providing practical experience as part of a student's education.

This method of teaching responds to current trends of educational reform, for example the London School of Architecture's ambition to 'transform training in the Capital' (Bevan 2015). At the Architecture Students Network conference *Lines Drawn* (2014), students stressed the 'importance of practices playing a role in their academic and professional training' and of 'live projects ... seen as a positive step in engaging with the real world'.

Rethinking architectural education and employability

This research has shown that teaching socially engaged live projects as part of architectural education within the design studio comes with great benefits for the project itself, for the communities attached, as well as for students. The case study 'Re-imagining Hayes' demonstrates that architects and students need to remain community collaborators over a long period of time, free from the academic calendar, in order for projects to be successful and holistic in a social and cultural sense. The unlimited engagement with a place and community allows trust to be built up, and represents a resilient and experimental approach to projects which can, if necessary, allow proposals to adapt to the fast-changing environment of our cities. The benefits for the students go beyond the learning outcomes, which are set in the module specifications. Joining the Live Projects Studio has a great impact on employability. It prepares students for practice and teaches skills to self-initiate projects. Feedback has also shown that students find working on live projects with real stakeholders extremely rewarding, giving them a reason for working beyond academic achievement – often improving their grades – and providing them with a sense of duty of care. In addition, a year in the Live Projects Studio combines academic experience with practice. The experience could count towards the Professional Experience and Development Record which is required in order to become an Architects Registration Board-registered architect in the UK. Tutors who lead the live project could act as employment mentors, supervising the academic and professional experience and working closely with the university-based Professional Studies Advisor. In this way, architectural education can be shortened, reducing the overall time of studying and making UK-based education more competitive, matching the period of study in most EU countries.

Notes

- 1 The live projects described here are defined to have real clients and operate within a real time frame often lasting beyond the academic year, but they do not necessarily have to result in the construction of a building.
- 2 Eighteen months later, this site with fragmented ownership has been purchased by a developer, and the planning application for a large-scale housing development with 124 apartments is in the final stages of planning approval. The council insisted on the inclusion of public amenities to accommodate a local canoe club, as originated by student Eglantina Hoxa.

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10

PROVOCATEURS OR CONSULTANTS? THE ROLE OF SHEFFIELD SCHOOL OF ARCHITECTURE IN THE CO-PRODUCTION OF CASTLEGATE

An interview with Carolyn Butterworth

Carolyn Butterworth with Randal Lawrence

This interview is based on a co-authored paper: Butterworth, C and Mackay, R (2015), *Provocateurs or Consultants?*, *Proceedings of Architecture and Resilience on the Human Scale Conference*, University of Sheffield, pp. 463–473.

RANDAL LAWRENCE (RL): The other chapters in this ‘dialogue’, by Lawrence and Fellingham and Denicke-Polcher, both describe different ways in which their teaching practice has grown beyond the limits of the design studio to reach out to a broader constituency. Similarly, your own work in Sheffield has attempted to engage civic actors in understanding the opportunities of new modes of production. Why is it important for schools of architecture to engage with their local communities and how does it contribute to resilience?

CAROLYN BUTTERWORTH (CB): Communities need support now more than ever to build resilience within their neighbourhoods. The UK Government’s austerity cuts have not only made communities more vulnerable in the short term, they are also slicing away the support required to enable communities to weather challenges in the long term. For example, the city of Sheffield has been hit hard by cuts, forcing the city council to reduce spending by £350 million or 40% between 2010 and 2016. Despite the council’s priority of ‘building strong communities’, cuts have hit right at the heart of communities – closing libraries, abolishing community assemblies and tightening many services outside core delivery (Sheffield City Council 2015). As a result, in Sheffield, as elsewhere, public service delivery is changing.

To face the challenges of shifting demographics, funding cuts and the alienating processes of development requires a strong sense of community identity and agency. A community’s ability to exercise control over its built

environment plays a key role in this and its capacity to build resilience in face of an uncertain future. It's in this area that I think schools of architecture can play a vital and meaningful role.

RL: Lawrence and Fellingham and Denicke-Polcher also explore the challenges of promoting a resilience agenda in very different cultural contexts. It seems there is often as large a gulf between academia and the community as there is between different continents. What challenges does the resilience agenda present in a context like Sheffield?

CB: The challenge that the resilience agenda brings to whichever context it is applied is the requirement for new partnerships to be forged in spite of differences in approach and expected outcomes, and across often entrenched divisions between local actors. Sheffield School of Architecture has attempted to build resilience in and across two different contexts: in architectural education and in local communities, through student design projects.

For example, in a neglected city centre area called Castlegate, SSoA is brokering a dialogue between the area's fragmented communities and the council. Opportunities and tensions inherent in this role are often manifested through questions about the role a university can and should play in building community resilience. The aim is to explore how work produced in academia can maintain its critical pedagogical position while still fulfilling a useful role in facilitating co-production in local communities with, and even on behalf of, local authorities.

RL: What does resilience mean to a student of architecture today? Can the traditional model of architectural education survive in an age of austerity?

CB: Currently architectural education is undergoing an intense period of reflection and debate within schools, across pedagogical networks and in our professional institutions. Driving this is the need to develop ways in which students of architecture can be equipped to find employment in a rapidly changing profession. Architectural practice is becoming polarised between very large, often interdisciplinary, practices working across many different countries and very small SMEs [small and medium-sized enterprises] specialising in highly contextual local projects (Cole et al. 2011). Student debt is rising due to higher tuition fees, and the average graduate salary is low considering the extensive training that is required (Mark 2014).

In these uncertain times there is widespread recognition that traditional models of education are not meeting the contemporary challenges of the profession (Hunter 2012). Many architectural educators now see their role as facilitating resilience in students, so that they may take a proactive stance towards the challenges of both the contemporary and a future profession. A resilient architecture student can transfer their skills from one situation to another, partnering excellent design, research and communication skills with the ability to reflect and think critically. These are the skills required to work effectively with existing situations while also questioning, challenging and transforming practice in the future.

RL: In this book, Sandra Denicke-Polcher discusses the importance of engagement with the wider community at The Cass School of Architecture, with particular reference to the role of Live Projects. Sheffield School of Architecture has also earned a reputation as a pioneer in this field. How important do you think live pedagogy is to a wider reframing of architectural education?

CB: Students working with real clients, learning the practice of architecture through 'live projects', has become almost commonplace in schools of architecture in the UK. It is our belief that this teaching method is well placed to encourage the skills of resilience in architecture students that are vital for future practice. It has also become clear to us that live pedagogy can also be of great benefit to the community groups that take part in the projects. Critical reflection, self-awareness, the ability to speculate upon futures, a creative attitude to available resources, and the ability to communicate priorities and values are all key to a resilient community. These are mutual learning points that are shared across all participants within a live pedagogical situation, students and client groups alike. However, these projects should not happen in a vacuum. By undertaking Live Projects that actively build resilience within local communities, SSoA has situated itself as an agent within an ongoing context of reduced state responsibility and diminishing public resources. For SSoA to continue to build resilience, both for its students and the wider community, its relationship with local partners, and to a wider extent the university's, is one that needs to be understood and carefully negotiated.

RL: The local context in which SSoA is working is affected by wider phenomena by which successive UK and Western governments have relinquished control of public services to market-led forces and the priorities of the individual. Can this wider shift actually lead to improvements?

CB: On the face of it, recent moves that have seen urban planning and community support opened up to greater input from individuals and non-public bodies have the potential for these services to become more flexible, and user-driven, in their design and delivery. But while there is clear potential to improve service delivery, these aspects are resourced in a way that does little to encourage creativity and initiative at a community level (Whitfield 2012).

In the UK this agenda was pursued by the coalition government under the Localism Act, which, via the Neighbourhood Planning Policy Framework (NPPF), aspired to a far greater involvement of community and third-sector organisations in the planning and design of the built environment. Yet in a review of Localism policy, Matt Padley of the Centre for Research in Social Policy at Loughborough University (2013) noted a universal lack of clarity in the 'articulation and application' of the concept. While on the face of it Localism proposes to 'release councils and communities from the grip of central government' (Department for Communities and Local Government 2011a, in Padley 2013, p. 343), 'encouraging local autonomy and flexibility' (HM

Treasury and Cabinet Office 2004, in Padley 2013, p. 343) and ‘empowering communities to do things their own way’ (Department for Communities and Local Government 2011b, in Padley 2013, p. 343), this is a seemingly impossible task given the austerity cuts to public spending inflicted on local authorities. The result has been a scaling back of central responsibility in planning and urban development, without the necessary provision of support to enable control to be picked up at a local level.

RL: What role can co-production play, then, in guaranteeing the support that is needed for vulnerable communities at a local level?

CB: There is growing acknowledgement of co-production as a method of application. Fundamentally, co-production questions the divisions existing between departments, sectors and institutions, pushing for ‘mutual exchange’ across long-standing boundaries (Boyle & Harris 2009). When the concept is discussed in relation to urban regeneration and the design of the built environment, the need to broker a dialogue between local authorities and the local community, particularly those factions that are under-served by current levels of community support, becomes hugely important. Within Sheffield, this role of broker between local authority and the public is one that, as a result of 19 years’ practising live pedagogy in the city, SSoA is now beginning to occupy. This has led to numerous short-term collaborations between SSoA and Sheffield City Council, but in order for this partnership to build the resilience of local communities and architecture students in Sheffield (and serve as a possible model of future co-production in the city), further understanding of how this can become a long-term and sustained relationship is required.

RL: Can you describe the origins of the recent work the University of Sheffield has been undertaking with Sheffield City Council at Castlegate, in Sheffield? What is the significance of this site to the city?

CB: Castlegate lies at the northern edge of Sheffield’s city centre, now somewhat removed from the concentration of activity in the busy shopping streets and public spaces to the south. Historically, Castlegate was the birthplace of Sheffield, home of Sheffield Castle and for many centuries the centre of the city. Despite the ruination of the castle and the building of the new Town Hall elsewhere, Castlegate continued to hold a vital role as the centre for market trade in the city, serving in particular the working-class neighbourhoods of northern Sheffield, supported by the construction of Castle Market in 1959.

In the last 20 years, however, the fortunes of the area have declined sharply due to shifts in shopping habits, lack of investment and the city council’s strategic planning decision to open a new market to the south of the city centre. In 2015, Castle Market was demolished, bringing to an end 800 years of markets on that site. Castlegate’s rich social and architectural history, its current state and its uncertain future make the area a fascinating opportunity for ‘on-the-ground teaching and research’ (SC 2015). As a result, the city council is now collaborating in the shaping of the area’s future with the University of Sheffield, including the Departments of Landscape, History and Archaeology, and the School of Architecture.

RL: What specifically has been the extent of the School of Architecture's involvement in Castlegate, and what is the aim of this work?

CB: Since 2014, SSoA has based four Live Projects and four Masters design studios in Castlegate, with 120 students working there, dedicating in total about 4000 days of research and design to the area. Through ongoing creative participatory design and research (see Figure 10.1), the students produced material that is situated deeply in the area and closely reflects the anxieties, hopes and dreams of local people (see Figure 10.2). Even pre-austerity, this level of long-term, creative and responsive community participation was beyond a local council's capacity.

The aim of SSoA's work is to lay the groundwork and create a vision for a co-produced Castlegate, where the future of the area evolves through the close involvement of its citizens (Figure 10.3). At its heart this relies on a culture of mutual exchange between the city council and the area's resident, business and community groups, a dialogue the university is keen to facilitate as an 'honest broker' (VT 2015), and which SSoA is in an excellent position to support through student involvement.

After three years of intense work in Castlegate, the efforts of our students and academics are now making a clear difference. Local stakeholders, including the city council, have contributed to and adopted a co-created vision for a grassroots-led development of the Castle site produced by the students. Not only has the student work delivered a vision for the site alternate to the top-down masterplan that was originally in place, they have also demonstrated, through the inclusive nature of their work, the benefits of co-production. There is now an expectation that 'in Castlegate we are going to do things in a collective way' (SO 2017). The quality of the students' designs, backed up with rigorous research, has raised stakeholder ambitions for the site and, according to one of the local groups, Friends of Sheffield Castle, a new desire to 'welcome all kinds of ideas and creativity around what the project might be' (MG 2017).

FIGURE 10.1 Community groups contribute to a co-produced vision of Castlegate.

Photo: Carolyn Butterworth

FIGURE 10.2 SSoA students engage local people on Castlegate's streets.
Photo: Carolyn Butterworth

FIGURE 10.3 The Live Project co-produced vision for the Castle site.
Source: Carolyn Butterworth

RL: What is the nature of the relationship that has been formed between the university and Sheffield City Council through these activities? Can this partnership serve as a model for co-production in future urban regeneration?

CB: The evolving 'lively and productive' (SO 2015) partnership between the university and the city council in Castlegate has begun to set the tone for a more long-term collaboration between the two institutions. While a strategic partnership is formalised at senior management level within both institutions, its success is reliant on individual, non-formalised and 'organic' relationships (SO 2015). Sally Cuckney, a Development Officer working within the City Regeneration team at Sheffield City Council, accredits the drive for a long-term partnership between the two institutions to 'smaller success stories', individual projects and the result of 'people being forced to think more creatively', that has 'built bridges' over time (SC 2015). It is important to speculate how these fluid and 'reactive' instances of 'the right people talking at the right time' (SO 2015) can be valued and encouraged within a strategic and largely top-down approach from both institutions.

RL: What are the understandings and compromises that need to be established to make these relationships work well for students, academics, external partners and local communities?

CB: The benefits of student involvement in bringing 'intellectual input' in the form of 'new ideas, imagination [and] critique' to the urban regeneration process is something that is made explicit by both the university and the city council (SO 2015; VT 2015). A valuable aspect of student involvement in the engagement process is the value of the informal nature of the relationships formed between students and local stakeholders. One student said: 'If you say you're a student people want to talk to you ... you've got more of an opportunity to be a bit cheekier [than the council] and ask a lot more and push the boundaries' (MArch 2015). The value of more candid engagement between the students and the public was also picked up on by Sally Cuckney (2015), who remarked on the ways in which student involvement 'worked wonders' for gaining insight into the opinions of stakeholder groups. However, while the role of students as catalysts or brokers is widely acknowledged, their capacity to act as agents of fundamental change, beyond the initial stages of ideas and engagement is still underestimated and undervalued. We have shown in Castlegate that through long-term sustained action in one place, successive cohorts of students can shift dramatically the processes, expectations and, ultimately, the spatial design quality of the development of that place.

RL: How did the students find the experience of working with Sheffield City Council at Castlegate?

CB: The value of working with external groups, identified primarily as the acquisition of inter-personal skills that cannot be learnt in the traditional academic setting, was acknowledged as being 'extremely beneficial', corroborating the live

pedagogy agenda from SSoA (MArch 2015). Yet a comment from the MArch students working in Castlegate was that, while it ‘felt like [their] ideas held some traction and were going to make an impact’, due to the freedom afforded to them to ‘push the boundaries’, there was always a concern that ultimately the formal development process would roll on regardless and the potential impact of their work was limited (MArch 2015). Two years on, current students are now beginning, at long last, to see the impact that their and their predecessors’ ideas are having on the processes of development of the site, with one final year student saying: ‘I now feel a sense of agency in being able to personally impact the city in which I grew up’ (TM 2017).

RL: Do the differing timescales and ambitions of each institution present any difficulties?

CB: According to Simon Ogden (Director of City and Cultural Engagement at the University of Sheffield), ‘The council and the university march to slightly different drums’ (SO 2015). While at a strategic level the university is committed to partnering in the long-term regeneration of Castlegate, with student projects lasting no more than a few months, building continuity in the long term has its challenges: ‘There is a limit to the impact a year’s [student] work is going to have unless it’s part of a programme that each year of students contributes to’ (SO 2015).

The collaborative regeneration being embarked on in Castlegate will take time, but when ‘students aren’t physically there for long enough’ to work on the project from start to finish, it becomes very difficult to ‘keep up momentum’ (MArch 2015). Fully aware of this challenge, SSoA has made a long-term commitment to working with community and civic partners in Castlegate, every year bringing in new cohorts of students while providing continuity both through my relationship with the project and the strategic support from the university. This overcomes the difficulties presented by the rapidity and cycle of the academic year, and enables work to accumulate and build in impact over time.

RL: Can work produced in academia maintain its critical pedagogical position while still fulfilling a useful role in local communities with, and even on behalf of, local authorities?

CB: There are clear differences in the product and expected outcomes of each institution. The critical, provocative and exploratory process that is essential to the pedagogical process provides students at SSoA with the freedom to make propositions often push, if not lie outside, the parameters by which Sheffield City Council operates. As one student said, ‘We develop our own narratives which aren’t always relevant’ (MArch 2015). This has clear difficulties when an external partner is hoping for clear deliverable outcomes. However, within the learning experience there should be possibilities for conjecture, risk and accident, and these do not necessarily map against an instrumental process of problem and solution.

Saying that, over time we, and our partners, have begun to see the value of speculative work that does not conform to deliverable criteria. Much of the

work produced within the design studios was for large-scale architectural projects with complex programmes, and not designed to be built. That's not to say, however, that they weren't useful in the co-production process. They became catalysts for conversations around issues that were very specific to the future of the Castle site, including massing and density, inclusivity, climate change, and the relationship between new and old. These speculative projects raised awareness of good design and international best practice and heightened the ambition of the stakeholders of what could and should be delivered for the site.

RL: What wider lessons can we take from SSoA's experience at Castlegate?

CB: The partnership between SSoA, the city council and the public in Castlegate has highlighted the potential for co-production to build resilience in local communities, by supporting individuals to form personal relationships across traditional barriers, and encouraging mutual exchange between academia, community groups and local government.

It has also revealed two fundamental conflicts, where differing timescales and expectations of outcome have meant that the full impact of these partnerships in building resilience can be compromised.

Co-production requires long-term and creative commitment to an area from all stakeholders. In times of austerity, the capacity for universities to focus their resources on a particular area and its communities in the long term has been shown to be an extraordinarily valuable resource for public service providers. A hesitancy to do so, however, is understandable, and stems from the perceived risk that this resource becomes moulded into existing protocols of service provision, rather than a partnership of mutual exchange.

RL: How important is it to reconcile the competing expectations of different institutions?

CB: There needs to be mutual respect and appreciation for the often seemingly contradictory expectations of outcome from academia and local government. Critique and academic enquiry, even provocation, is certainly valued by the council, as long as it is partnered with proposition: 'Yes, ask difficult questions but also suggest some answers' (SO 2015). It is the capacity to be provocative and propositional that makes architecture students especially well placed to help shape the future of an area in partnership with its communities, so long as the differences that exist are transparent and understood between all partners.

It is important to accept these differences, and to understand that a successful partnership does not need to be perfectly symbiotic. Learning how to shape a dialogue that acknowledges and respects differences in operating practices while maximising the potential of all participants is a key skill for students, citizens and institutions alike. Achieving this dialogical process of co-production has been shown to be a complex and nuanced process, but one that can begin to build self-knowledge, resilience and the capacity to transform not just a part of a city, but even the institutions themselves.

RL: What future plans do you have to work with the concept of resilience in your teaching and practice?

CB: I continue to work in Castlegate with our students and with increasing confidence that SSoA's involvement is making a difference to the future of the area, for the better. I have learned to be patient and not be knocked back by short-term problems, but instead focus on the long view. I have also learned that the processes of co-production move slowly, and all parties need to dedicate substantial time and effort to make them work. Despite these frustrations, however, our stakeholder and student interviews evidence the impact that the process is having, not only on the future development of the site itself, but also on the resilience of the local groups, students and organisations we are working with.

Our experiences in Castlegate have given me a better understanding of the mutual learning that occurs between all parties engaged in co-production, and I will continue to advocate similar processes in future collaborative projects. All too often, live projects are evaluated upon the impact of their final outputs, and not on the impact of their collaborative processes. Our work in Castlegate has given us clear evidence about the value of both. If co-production is done with care, inclusivity and generosity, the learning that ensues can cultivate resilience within individuals, groups and organisations alike.

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DIALOGUE IV

Challenging climate denial

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11

BUILDING RESILIENCE IN THE BUILT ENVIRONMENT

Susan Roaf

Introduction

We live in a non-linear and unpredictable world of boom and bust, of war and infrastructural failures, where rapid change and uncontrolled growth are driving the collapse of established systems (Figure 11.1). Cavalier markets cause turbulence, even in the so-called regulated economies, with consequences of the magnitude of the bottom-up implosion of the US housing markets in 2007–2010 that triggered a global economic maelstrom. All of this is happening against the unedifying backdrop of the gradual degradation of the physical, social and environmental infrastructures of nations, exacerbated by the multifarious impacts of a warming planet and its ever more extreme weather events. Such early warnings of what is to come are all around us, manifested in the exceeding of ecological and economic capacities of buildings, communities and infrastructures to cope as circumstances unfold. The search for the more resilient attributes of systems that can protect us from such exigencies is becoming urgent. How can we save species, the seas and even whole continents from the ravages wrought not only by current populations, but also by future climates? Resilience is seen as a ‘solution’, but what is it? How might its essences be appropriated and harnessed in the built environment to create a more secure and inviting future for all of us?

Resilience

Resilience is an attribute of social and physical systems increasingly seen as a property of the built environment that is sought by planners, architects, engineers and politicians alike in new and refurbishment developments. As with the term ‘sustainability’, it is important to establish a common definition to enable us to cooperatively act on its implementation.

FIGURE 11.1 Diagram charting warming climate and rate of collapse of social and physical systems in the built environment.

Source: Sue Roaf

Borrowing a technical definition of resilience for material scientists may be useful. It is ‘the property of a material to absorb energy when it is deformed elastically and then, upon unloading, to have this energy recovered’, ostensibly the ability of a material to bounce back to normal after a testing event. Material scientists define the amount of resilience in a system as the maximum energy (stress) that can be absorbed per unit volume without creating a permanent distortion. This can be calculated for metals, for instance, by integrating the stress-strain curve from zero to the elastic limit (Campbell 2008) (Figure 11.2). Stress is placed on the material, which reaches a yield point, then there is the bandwidth of strain it can absorb before it reaches its maximum strength and fractures.

The rate at which stress is applied to an inanimate ‘non-learning’ metal does not affect the strain at which it fractures, because the metal simply performs mechanically to its limits. In ‘learning’ ecological systems, the rate of change, a product of the rise (scale of the stress) and the run (scale of the strain) of the process over time can vary significantly as it learns how to adapt to those changes to absorb more stress and/or strain. Berkes, Colding and Folke (2008) point out that in a rapidly changing world socio-ecological systems either evolve or do not

FIGURE 11.2 Chart showing the characteristics of material resilience under stress-strain.
Source: Sue Roaf

survive. The function of that evolution is to increase the strain the system can absorb before collapse occurs, for a given level of stress.

The risk of a system breaking in relation to climate change in the built environment has been disaggregated and characterised by Crichton as having three vectors (Crichton 1999; Roaf, Crichton, & Nicol 2009):

- *Hazard* – How bad is it going to get? How large is the stress experienced by the system?
- *Exposure* – Where are people situated in relation to that hazard? How much strain can they practically take?
- *Vulnerability* – What is the adaptive capacity of the individual to absorb more strain? What are the adaptive opportunities and potentials available to them and how able is the individual to make use of them? To what extent can the system be strengthened by accessing these opportunities to reduce the risk of system fracture?

To design optimally enhanced solutions, a clear understanding of the structure and nature of the problem is important. Wilson (2012) proposed a definition of resilience as:

The capacity of a system to absorb disturbance and reorganise while undergoing change to still retain essentially the same function, structure and identity, and feedbacks ... resilience is measured by the size of the displacement the system can tolerate and yet return to a state where a given function can be maintained.

This definition of resilience measures the area under the stress-strain curve at different times, once learning has led to innovations that enable the system to absorb more strain. But this definition implies that the system should 'bounce back' to an original state and/or function. Surely that original state or function is what could have failed in the first place? Why not design systems that can 'bounce forwards' to more failsafe states and functions? By designing systems that are enhanced by additional adaptive opportunities, these can be effectively accessed in response to a range of known, or unpredictable, futures.

Holling (1978) noted that 'Placing a system in a straightjacket [*sic*] of constancy can cause fragility to evolve', and all too often in recent years this fragility or brittleness of the fabric of the built environment has proved lethal in terms of the thousands of lives and buildings lost to flooding, heat waves, cold or winds, as well as proving catastrophic for the livelihoods and communities involved. It appears short-sighted to consider it acceptable to repair a system to a state where it can return to the point at which it failed previously, and rational to support investment in 'resilient reinstatement' that enables systems to '*bounce forwards*' to safer states, more capable of withstanding the next event of a similar or greater magnitude.

What is stopping us doing this? The system itself, perhaps: because of its complexity and embedded vested interests that all too often confound pundits and politicians alike. The awe-inspiring power of lobbying groups to impede the development of resilience is widely recognised as a core problem. Lazarus (2009) points out that the building of resilience is a 'super wicked' problem in which additional barriers to the evolution of the system are imposed by those with vested interests in the status quo of a non-evolving system.

There are also human flaws that can act to make the system less safe. Hardin (1968, 1994) developed the idea of the 'tragedy of the commons' to describe the dilemma that arises from the situation in which multiple individuals, acting independently and rationally, consulting their own self-interest, will ultimately deplete a shared limited resource, even when it is clear that it is not in anyone's long-term interest for this to happen. His ideas were taken up by many attempting to rationalise why, in the face of our growing knowledge base, decisions were and are being made that appear to push progress into socially, economically and environmentally damaging directions. It is inevitable that all of us wanting and having more would push local ecosystems, and in turn, economies, beyond their capacities to function fairly, or at all.

Stiglitz (2012) highlighted the profound dangers of 'asymmetric information', where some individuals have access to privileged information that others do not,

causing unfair advantage that can result in system collapse in itself. The system of planning gain payments to local councils for giving permission for developments is an example of the 'perverse incentives' fostered within the built environment system to the benefit of the privileged few, to the cost of the many who either do not know the rules or cannot afford a seat at the table.

Do we have the tools to measure and model these complex systems realistically (Cumming et al. 2005)? In the built environment, the growing awareness of how poor building simulations are at modelling reality and how great a 'performance gap' they often result in has made many wary of design models that are often, themselves, barriers to developing resilient solutions (Roaf et al. 2010). The same is true of larger ecological models. Ayres (1999) specifically points out that to forecast 'turning points', it is necessary to get away from trend-based models as were used in extrapolation, but goes on to point out the weaknesses of trying to characterise too many complex non-linear interactions with limited differential equations, such as those used in the early years of ecological modelling and in the original Limits to Growth model by Meadows et al. (1972). Ayres claimed that simple quantifiable models will not be adequate to identify timings and other attributes of turning points, but that 'naïve intelligence and intuition may be the best tool for coping with a very complex and non-deterministic future'. It appears that naïve intelligence applied to the above narrative indicates that in a system where the stress and the mechanical strain are fixed, a key underlying attribute of the resilience of a system is its adaptive capacity.

Adaptive capacity

In the background documents for the third report of the Intergovernmental Panel on Climate Change (IPCC 2001), the concept of Adaptive Capacity was developed in relation to the vulnerability of populations. At a national level, vulnerability is determined by factors such as economic wealth, technological opportunities and infrastructural resilience, information and knowledge, and equity and social capital. The determinants and indicators for Adaptive Capacity are typically given at a country level, rather than in relation to the risk level of an individual sector, person or household (Metzger et al. 2006), and definitions for key adaptation terms are often not associated with the methods for their quantification (IPCC 2007; Levina & Tirpak 2006; Stadelmann et al. 2011). Key data collection and analysis methods for adaptation typically deal on one hand with high level measures such as gross domestic product or are specific to local community-level factors (Wilson 2012).

Berrang-Ford, Ford, and Paterson (2011) have noted that adaptive capacity does not necessarily translate into adaptation, not least because of the wicked complexity of the issues involved. For example, a worrying trend in recent housing developments around the world has been their tendency to overheat, often rather badly, and often more in high-end, fashionable, over-glazed buildings with poor climatic design.

A study dealing with the housing crisis of Arizona in 2007–2010 (Roaf 2014) concluded that value-led and market-driven choices had led many from the middle classes of the Arizona Valley to live in homes that are too large, too far from work, and run on inefficient air conditioning systems powered by increasingly expensive energy. These choices contributed in many cases to householders' inability to pay their mortgages when energy costs doubled within the year. In greater Phoenix and Maricopa County, some 265,000 homes were recorded as empty in the 2010 Arizonan census, and one in 17 went into foreclosure in that year. Roaf argued that if people had been willing to settle for smaller, less 'flashy' and better climatically designed homes, closer to town, and run on the abundant local solar resource, the number of foreclosures could have been significantly reduced (see also: Aanesen, Heck, & Pinner 2012; Kirkegaard et al. 2010). The gap in the adaptive capacity of this system, when the strain got too much and the system snapped, presented as the local homeowners' inability to absorb the accelerating costs of energy (in a heatwave summer) into their daily budgets in poorly designed homes. The elephant in the room was the short-sighted, self-serving planning and development model in the State (and the politicians behind it), and the poor monitoring and management of its markets, resulting in meretricious house models being foisted onto the unsuspecting public. Homeowners who would have liked, and could have afforded, to act differently were not given the means to do so. Overnight, households began to spend more than they earned every month and the housing system failed, toppling the debt mountain in the first domino state that eventually triggered the largest global economic crisis for a century.

Measuring adaptation and planning for resilience

'If you can't measure it you can't manage it', as the old maxim goes. But how to measure resilience? The above implies that one might equate resilience with the adaptive capacity of a system. By assessing how much change will occur, it is possible to estimate how much adaptation is needed over time. By exploring a range of mechanisms available to absorb the increasing levels of strain to be imposed on a known system in relation to what can be achieved at different adaptive bandwidths, with costs and impacts also brought into the calculation, one might get a serviceable idea of when the system will break.

Measuring change may not actually be very difficult when compared with attempting to understand the incipient drivers underlying it. Firstly, a base line is set against which the rate and extent of change can be measured regularly and systematically over time. Using compatible and comparable information gleaned from this process, priorities for action can be explored and developed into cost-effective interventions in the rapidly evolving systems being measured. In practice, many private and public sector actors are increasingly being required to reduce and manage the impacts of change on the social, economic and physical systems over which they have power.

The Scottish Government voted in the first and perhaps most far-reaching Climate Change legislation globally in 2009, and has pioneered the development of locally appropriate adaptation indicators within the framework of a Scottish Climate Change Adaptation Programme (Roaf & Beckmann 2017). One of the sets of core indicators relates to the impacts of climate change on populations in the Scottish built and natural environments. These sets are being developed to underpin the Scottish programme of climate adaptation planning and ‘informed decision-making’. The evolving indicator sets are used in deliberative policy-making to help formulate both policy targets and action plans aimed at making a more resilient country by:

- a) reducing both exposure and vulnerability to the risks inherent in a changing climate;
- b) exploring ways of exploiting any opportunities that may emerge with climate change;
- c) developing the sound adaptation policy framework that is increasingly critical to the encouragement and enablement of planned adaptation leading towards improved resilience of a population over time.

The indicators play a key role in the planned *evolutionary* process being developed to accommodate and drive timely adjustments, as and when necessary, to enable populations to cope with, and adapt to, new landscapes, buildings and lifestyles in an increasingly rapidly changing climate. They will also be used to identify investment opportunities that might enable Scotland to continually ‘bounce forwards’ to positions of greater resilience over time.

The Scottish built environment adaptation indicators employ a risk-based approach in line with those being developed across the UK as a whole in its Climate Change Risk Assessment Programme. Indicators have been developed for Risk, Opportunity, Actions and Impacts for each climate challenge, and all need reliable and replicable data sets behind them. Examples of some of the now 20 Scottish Adaptation Indicators for the Built Environment include:

- a) **Flooding** – *Risk*: flooding to residential and non-residential property and to cultural heritage/proportion of properties/assets at risk. *Action*: e.g. proportion of properties at risk benefiting from flood defences and extent of impermeable surfaces in urban areas (data sources: Scottish Environmental Protection Agency [SEPA] and Ordnance Survey Master Maps).
- b) **Increasing Damp and Mould in Buildings** – *Risk*: extent of damp. *Actions*: new policies on standards for rented homes etc. (data source: Scottish House Condition Survey).
- c) **Energy Demand** – *Opportunity*: milder winters will reduce energy demand for heating; *Risk*: property energy efficiency and average household size. *Action*: proxies: extent of insulation measures in housing; extent of energy monitoring by occupants (data sources include Official Energy Efficiency

Ratings, General Register Office Scotland and Scottish House Condition Survey).

- d) **Transport and Flooding** – *Risk*: flooding of roads, disruption due to flooding of roads, flooding of railways (data sources include SEPA, Transport Scotland/local authorities, Scottish Flood Defence Asset Database, Network Rail and ScotRail).
- e) **Transport and Landslides** – *Risk*: landslides affecting roads; scour of road and rail bridges (data sources include SEPA floods/flows, Transport Scotland and local authorities).

The list necessarily evolves, and a new indicator set for overheating in buildings (even in temperate Scotland) is in consideration in response to this growing problem (Morgan et al. 2017). This problem has been dismissed compared with other regions of the world already suffering from more extreme overheating problems, such as Australia and the USA (Ruddell et al. 2012), but as the isobars creep slowly northwards, it is only a matter of time before the 2003 European heatwaves event which killed some 52,000 people (Larson 2006) will be repeated, and its impact will be magnified by poor modern building design. The above indicators could be applied to define the scale of the resilience challenge for an individual building as well as a country. The more modern a building is, often the more vulnerable, brittle and un-resilient it is in the face of extreme weather events like heatwaves.

So how did it come to this? We have known for decades that the world is warming. The *5th Report of the Intergovernmental Panel on Climate Change* (IPCC 2014) provided clear evidence of the often devastating impacts of a warming world. In 2014 alone, many people died as southern Australia sweltered in the grip of an unprecedented heat wave in January, and when North America experienced a catastrophic freezing period in November. In 2017, the exceptional hurricanes Irma, Jose and Maria devastated whole countries and regions around the Gulf of Mexico. In 2018, fires, floods and landslides in California killed rich and poor alike, and it was in buildings that most people were killed. So why are modern buildings more prone to risks like overheating?

Why buildings already overheat in a warming world

In the 1990s, as concerns about climate change began to have an impact, designers became aware of the need to mitigate the impacts of global warming and became obsessed with energy efficiency. In Europe, movements like Passive House were founded, largely suited to European climates and requiring several simple steps to be taken to reduce energy consumption in buildings (insulation, good windows, airtight construction, no thermal bridging, heat recovery systems). Then, in the 2000s, came the rise of concern with the broader subject of sustainability (Roaf, Horsley, & Gupta 2004). In Denmark, the Active House group rose to the challenge and developed a model that included a wider range of

design features, including thermal storage, natural ventilation, adaptive envelope and active solar/renewable energy systems.

This was a huge step forward from the limited Passive House model that all too often promoted over-sized and non-opening windows, both of which increased the risk of overheating indoors. But like the Passive House homes, some features of the Active House, like the concentration on roof lights and over-large windows regardless of orientation, indicate that they did not account for problems of overheating in more extreme hot weather events. The Active House designs emerged in cooler Denmark, just as the Passive House movement emerged from the higher regions of Germany, explaining perhaps why neither models respond to problems nor provide solutions required to reduce the risk of overheating in buildings in different climates.

The advantage of the parallel British Ecohouse movement (Roaf, Fuentes, & Thomas 2012) was that from the beginning its promoters understood that buildings must, and will, increasingly have to be designed not only to minimise their impacts on climate change, but also to adapt to more extreme weather in a rapidly changing climate in a warming world (Figure 11.3). Eco-buildings are thermally landscaped (Roaf 2018) to include climate refuges where occupants can

FIGURE 11.3 British Ecohouse, Oxford, UK.

Photo: Sue Roaf

find safe and comfortable havens, and ransom zones where some spaces are abandoned during extreme events. Ecohouse design promoted:

- climate-ready and future-proofed buildings;
- buildings run on solar/renewable energy with storage of heat and coolth within them;
- a wide range of adaptive opportunities and easily usable controls;
- buildings in which behaviours are deemed part of the solution, not a problem.

The key reasons why we now see alarming levels of overheating in buildings are as follows:

- 1) Over-emphasis on 'energy efficiency', resulting too often in mechanical solutions playing a dominant part in design solutions, often resulting in the knock-on problem of engineers insisting that the windows in buildings are fixed closed (Santos, Samani, & de Oliveira).
- 2) The distraction of sustainability rating tools that apparently compare disparate entities in a quasi-scientific manner and result in sellable rating products, especially if mandated by regulators, but often result in wrong-headed solutions being imposed, leading to chronic overheating.
- 3) Architects and engineers who are hampered in their desires to design resilient buildings because they use incomplete, assumption-driven, often inaccurate building simulation models that are not capable of designing climate-proof buildings and do not deal well with embedded thermal and electrical storage, complex natural ventilation systems and the unpredictable behaviours of occupants (Clarke 2018).
- 4) The scale and rate of change of already-experienced climate impacts are not well understood or believed, resulting in many designers not even attempting to address them in their designs.
- 5) Building regulations are retrograde and push designers to designing buildings that fail – for instance, using too much energy or overheating.

Wrong-headed regulations

Nowhere better is the paradigm shift from twentieth- to twenty-first-century approaches to design revealed than in the field of thermal comfort, where a current generation of researchers are acting to redirect the super-tanker of change in the built environment from its business-as-usual trajectory towards developing a new generation of safer buildings that are run largely on natural energy (Roaf & Nicol 2017).

The lowest-energy buildings are those that run for as much of a day or a year as they can in a naturally ventilated mode, eschewing the need to use machines at all to maintain comfortable conditions indoors (Roaf 2012). By simply opening a window in a Dutch home, Alders (2018) showed that up to 80% of home

conditioning energy can be saved. Of course, this may not be possible in some cases, but we are all aware of the dangers of allowing people to write the very regulations from which they personally benefit. The reality of how the air conditioning industry exerted its muscle to keep windows closed and comfort provided solely by machines has been well described by other authors (Ackermann 2010; Cooper 2002), but now the excessive social, environmental and economic costs of this model are becoming clear, resulting in a big move away from prescriptive, steady-state-informed comfort standards (Cass & Shove 2018). It is now understood that people find a huge range of temperatures acceptable within buildings as they adapt to their local climates and cultures and personal circumstances (Nicol, Humphreys, & Roaf 2012). Emerging twenty-first-century approaches to designing for indoor low-energy comfort are very exciting and may well radically influence the way in which buildings are designed in the future (Brager, Zhang, & Ahrens 2015; Roaf, Brotas, & Nicol 2015).

Resilience means doing more for less in the arena of enabling people to be comfortable in their own buildings. Building regulations need to move on very quickly to embrace new comfort paradigms if we are to avoid the wholesale failure of a generation of modern (high-energy) buildings.

Designing resilient buildings – who should do it?

Unfortunately, the last 50 years has seen the bifurcation of the design industry accelerated into engineering and architectural silos, with architects handing over responsibility for the performance of the building to engineers who are only taught how to use machines and improve their efficiency. This trend is now reversing, but to achieve a truly resilient generation of new buildings, really hard decisions are going to have to be made.

Many architects will have to put aside the simulation packages and learn how to think through for themselves how buildings actually work. Research shows that what really matters is how buildings behave, defined by the underlying structure, including: form (footprint in 2D and section in 3D), orientation, openings, height in sky, depth in ground, floor-to-ceiling heights, structural/roof overhangs, materials/mass and the properties of surfaces. It is these immutable features of a design that determine the basic ‘thermal pulse’ of a building; how coupled to, or de-coupled from, the outside weather the internal climate is. This is the architecture of the building that determines how ‘well-behaved’ it is. The better-behaved a building is, the less likely it is to overheat or get too cold.

It is only once the underlying *character* of a building has been established that the secondary choices are made that perhaps represent the *personality* of a building – how you interact with it. As with personal relationships, the extent to which you can communicate with a building really influences how much you want to be with it. The adaptive opportunities offered by building are how you communicate with it, and they relate to everything you can change about it. It is about the power you have to control your own destiny in a building, or how

much power others have over you in it. Adaptive opportunities to change the building may include: u-values, occupancy levels, internal loads, opening windows and ventilation strategies, infiltration rates, furnishings, clothing worn, heating and cooling systems and strategies, shades, curtains, blinds, buffer spaces, landscaping and so on. Improved comfort often results from people's behaviours in relation to the available adaptive opportunities available to them.

The silo-isation of the design professions has led to a plethora of architects who know little or nothing about how to (a) design thermally well-behaved buildings and (b) integrate and functionalise adaptive opportunities into their designs. Engineers are often only taught how to size machines to meet the loads specified in the design codes in their ASHRAE or CIBSE guide books. They may know little or nothing of the wide range of adaptive opportunities available in the system or how they could be utilised to passively reduce energy needs in a building and to improve comfort, without machines.

So if architects are not actively engaged in the basic climatic design of the *character* or *personality* of a building, what do they do? Well, there is a third step in the building design process: how we perceive or sense or feel a building, its *style*, perhaps, its ability to seduce a person. How much does the building attract you as being what you want to be associated with? Just imagine you are walking into a room for the first time and you will develop an instant first impression of just how comfortable you will be in it, or how happy, safe or well you will feel inside it, how much you will like it and want to be associated with it. These feelings may be to do with a view, art, sounds, scents, style, colour, light, formal composition of shapes, decoration, fabrics and so on. Architects have recently been very visible at the 'wow' end of the style scale, determined to garner attention for the visual impact of their creations, but there is a well-being end to that scale, too, that is of increasing interest to clients and users. However, in a warming world, both the architectural and engineering professions had better look back to the 'character' of their buildings, because that is what ultimately shapes the amount of thermal stress they can absorb, but it is the adaptive opportunities and their use that set the limits on how much strain the system can cope with before it breaks, sending its occupants to hospital for hyperthermia or hypothermia, or sinking its value in local markets. In settlements across the world today, one sees over-glazed buildings that are simply uninhabitable and unaffordable, abandoned and ugly.

A final question needs to be addressed: who is teaching these young architects and engineers to be so ill-prepared to play their part in shoring up the defences of our civilisations against what is to come?

Conclusions

In our warming world, the quality of the climate-proofing of the basic design of a building will ultimately determine how much thermal stress it will cause to occupants. The amount of theoretical strain it can take is determined by the

number of adaptive opportunities available to the occupants in it. But in self-taught learning systems, the amount of stress that can be absorbed under a given quantity of strain can be significantly increased through intelligently adopted and evolving responses by occupants themselves. In the context of the current built environment challenge of enhancing building resilience, it appears that there is very little room to evolve, with the current planning and regulatory systems locked into extensive lobbying networks driving the system, all too often leading to the wrong results. Educational environments and designers are equipped with tools and rating systems that appear to be dictated by failing design simulation models. Progress is hampered by a general lack of understanding of the urgent need to improve business-as-usual practices in the face of increasingly extreme pressures acting within our economies, societies and climates. There appears to be little political appetite for measuring and managing the decline in the energy and thermal performance of buildings today. It will take a radical overhaul of the vested professional and commercial interests at the heart of our culture to enable us to create a generation of stronger, well-behaved, well-liked and resilient buildings, because – heart-breakingly – that is certainly not what we are being given by the status quo markets of today. The ultimate question must be: *Quis custodiet ipsos custodes?* Who guards the guardians? And why?

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12

THE NEW IMAGINATION IN A CULTURE OF UNCARE

Sally Weintrobe

Introduction

Sue Roaf, in a wonderful phrase, called for architects to ‘re-engineer their dreams’ to build for a sustainable future.¹ This means nothing less than restructuring the architectural imagination. The imagination needed for our climate crisis is a caring imagination. My argument is that a culture² of uncare³ in the global North⁴ actively works to break our felt links⁵ with the part that cares. It does this to block change and promote carbon-intensive business as usual. I suggest we are all, more or less, influenced by the culture of uncare.

Roaf’s phrase ‘re-engineering a dream’ resonates with a psychoanalytic way of seeing: here, thinking is an inner, psychic, dynamic building project in which we maintain links with care by keeping those we care for near by us in the internal world of the imagination, close enough to feel touched by them.⁶ A main way we break links to care is by spatially rearranging our relationships in the inner world of the mind *in order to* keep people at a distance.⁷ As ‘distanced others’,⁸ we do not care as much for them. An internal world⁹ with uncare in charge is an internal world in which our relationships have been re-engineered spatially in this kind of way.¹⁰ My argument is that the culture of uncare works to promote this kind of rearranging which can lead to distorted inner representations of the external world.

I will look at what sort of caring imagination we need to dream of and to build a sustainable world. I call it the ‘New Imagination’. Embracing the New Imagination involves repairing broken links with care, and forging new links with care. This can be difficult and painful to do, but can also expand the experience of self and of feeling alive.¹¹

A concept I will emphasise is frameworks of care. The capacity to care is not just part of individual character, but depends on frameworks of care being in place. Architects build them when they build sustainably.

The culture of uncare

An uncaring psychological mindset gained political ascendancy in the neoliberal era ushered in with the elections of Thatcher and Regan. This mindset is organised, narrow-minded, short-term-minded and avaricious, and it tends to be set and tenacious. It is driven by a powerful underlying phantasy,¹² which is that the Earth is an idealised, indestructible breast/toilet mother, there solely to provide endlessly for us and to absorb all our waste.¹³

The project to globalise the economy was largely driven by this phantasy. 'Grab, grab, grab, now, now, now; undermine as many restraining trade barriers as possible, hide the true costs and let tomorrow go hang' was the order of the day. Laws were framed and trade agreements put in place to facilitate deregulation. Naomi Klein (2014) described this in her latest book on climate change, *This Changes Everything* as did Joel Bakan (2004) in *The Corporation*. Deregulation included undermining frameworks of care that held excessive greed and entitlement in check.

The only possible outcome of globalisation driven by a mindset that sees the Earth as a breast/toilet mother was a pile-up of social and environmental damage, and the biggest problem for drivers of the global economy was how to get people to cooperate with an immoral and inherently unsustainable project. Happy, carefree consumers were needed to boost profits. The problem was that people care.¹⁴ The need was to reverse the human climate so that people would care too little, not too much. To date, trillions of dollars have been spent on undermining care through working to shift people's bedrock ego ideals of caring behaviour. Undermining care has been brought about through political framing, mass media, the academe, general culture and advertising. It has led to a change in the culture of our social groups towards greater disregard for science, more materialistic values and the idea that to feel free of care and inner conflict is desirable, rather than being a warning sign that one is living in a psychic retreat within the mind. All this money would not need to have been spent, and would not have been spent, if people were basically uncaring by nature. Instead, people are caring *and* uncaring by nature.

The culture neoliberalism put in place aimed to boost uncaring and disable care, specifically in relation to our behaviour as consumers. The need was for people happily to consume ever more products produced in the cheapest possible way to maximise profits. The true cost was climate change¹⁵ and rising social inequality.

People's moral qualms, their feelings of responsibility, their anxiety that it would all end very badly, their sense of guilt and their impulse to resist taking part all stood in the way of the willing cooperation needed. The new culture that came in had the ideological function of helping people find ways not to care too much about living in a way they knew deep down was morally wrong and unsustainable. The culture's aim was to change existing cultural mores. By now, these changed mores have been extensively studied by social and psychosocial scientists, with each naming the new human cultural climate in turn as narcissistic,

perverse, consumerist, extractive, entitled, arrogant, psychopathic, instrumental and manically triumphant.¹⁶

Lawrence Summers' leaked memo

The uncaring mindset that drove cultural change trickled down from corporate power, to governments, to social groups, to the individual psyche. Here is an example of the mindset at a corporate level. In 1991, Lawrence Summers, then President of the World Bank, confided in a leaked confidential memo:

I think that dumping a load of toxic waste in the lowest-wage country is impeccable and we should face up to that. ... Just between you and me, shouldn't the World Bank be encouraging more migration of the dirty industries to the Least Developed Countries?¹⁷

The uncaring mindset is writ large: outsource environmental damage to those who are far away and without power. Let them bear the suffering.

When this email was exposed, Summers said he was only joking. Presumably this was because he did not want either the bank or himself, as the bank's leader, to be judged immoral. The problem is that people care. They feel guilty and ashamed at having their uncaring exposed, and even if they do not, they know others will. This is the main reason why damaging and inequitable trade treaties are negotiated in secret, away from public scrutiny.

Like others, I was shocked to read of Summers' memo, but I too outsource environmental damage I cause, albeit obviously on a far smaller scale. Here is an example where I saw this clearly.

At the bus stop

I was waiting for the bus, having decided to travel more by public transport to reduce my carbon emissions. It was spitting rain, blowy and cold, and I thought, 'I hate waiting for the bus. I wish I'd taken the car.' Suddenly, spontaneously, I imagined my grandchildren overhearing my thought. They were now young adults, not children. In my imagination, their world, a future world, was right up close to my world. In my imagination, we were all close enough to hear, see and touch each other – close enough for me to see the extreme weather they were in, and close enough to feel their suffering.

I felt ashamed. Part of my shame was feeling I was so much less of a person than I wished I was, and felt I can be. I felt trivial, fatuous and grumpy, like a spoiled, entitled brat. I had heard myself in a different way and with a different perspective. I think this was because I felt a direct, loving, empathic link with my grown-up grandchildren. And, because I felt this direct link so keenly, I managed to stay in touch with what I had understood, despite this being painful.

This was that I had, without being consciously aware of it, relocated my own grandchildren to in a faraway place in my imagination, a place I had labelled 'the future', and I had done this in order to sever a caring, loving link with them. I had moved them from being close to distant so I would not have to feel guilty, ashamed and anguished about my carbon behaviour. Here I was, in an uncaring mindset, outsourcing suffering. In my imagination, my grandchildren were now 'distanced others', far enough away to be outside the area of my love and concern. I had broken my caring link with their actual future experience so as to assuage my guilt.

I have often thought climate change will affect the lives of my grandchildren. I now realised this was with real empathy cut off. I had never felt affected like this. Here, I believe I had repaired the loving, caring link between us. I had reversed mental distancing and brought them back close to me, where they properly belong. This is the sort mental re-engineering that I think is required.

The mechanism I have described – that of actively breaking loving links to avoid mental pain – is an ordinary human defence mechanism that can usefully protect us from being too emotionally overwhelmed. My point is that neoliberalism's culture of uncare boosts breaking caring links and boosts mental distancing on a daily basis. It does this in many ways and through different branches of the culture. For instance, take our social groups. Mine would more likely say, 'Don't be so hard on yourself; give yourself a break. Don't be omnipotent. Do you really think that your one tiny action of taking the bus is going to save the world?' They would be less likely to say:

Yes, it's unpleasant waiting for the bus, but stick at it. Perhaps give yourself a break if you are tired or not feeling well. Face how helpless and enraged you can feel that government is not stepping up to tackle climate change.¹⁸ Use these feelings constructively to help you do what you can towards combating climate change.

Or take our newspapers. They mostly airbrush out references to climate change. For example, at his last inauguration as president, Obama spoke about climate change. The main headline across the mass media that day was 'Did Beyoncé lip sync the national anthem?'¹⁹ Or take advertising and general culture. These relentlessly exhort and seduce us to feel entitled to idealised conditions. They encourage the uncaring part of us that I heard in my inner voice at the bus stop.

The aim of this culture is to break links with care and encourage spatial distancing of the victims of our uncare in the internal world of the psyche. The aim is to keep us defended against feeling conflicted and anguished at our collectively damaging way of living.

Disavowal

These distancing strategies are part of disavowal, which is seeing reality, but finding ways to remain blind to reality at a feeling level. Disavowal can leave us with highly distorted inner pictures of reality, with people we love far away or in

the shadows, with important issues seen as tiny and trivial issues seen as big, with time's steady march arrested to the present tense only, and with the environmental and social violence that we do carefully airbrushed out of the picture. We sanitise our inner landscapes through psychic re-engineering, and we do this to protect ourselves from emotional discomfort and pain. The culture, rather than help us face reality, invites us repeatedly to engage in disavowal. In this culture, it is very difficult to resist being drawn in.

Omnipotent thinking

One particularly destructive aspect of disavowal is that it attempts to solve problems omnipotently – through mental action, rather than through making repairs in the real world. This is magical, 'as if',²⁰ not rational thinking. My mental distancing is an example. It was 'as if' I could rid myself of guilt and anxiety just through a mental action. I cut my links to care by locating my grandchildren far away, as if this would solve the problem. At one level it does solve the problem, in that it gets rid of consciously experienced guilt. The cost is rationality itself. And 'as if' thinking only leads to problems getting worse, because damaging behaviour is not addressed in reality.

Genuine care involves mourning the phantasy that the Earth is an idealised breast/toilet mother, and attempting to address the damage this phantasy has caused. 'As if' care is setting ambitious climate targets one knows will not be kept,²¹ or apparently minimising the danger, or believing in miracle techno quick fixes, or avoiding hearing any news about the damage, or rubbishing the climate science community, or locating the damage in some future far-off place, or preferably doing all these at the same time. All these magical repairs work by cutting felt links with care.

'As if', omnipotent, fake solutions can be rustled up in an instant. They require no inner psychic work, which is needed to reconnect with care. Connecting and reconnecting with care is the only kind of work that will lead to real repairs being undertaken in the external world. The true aim of omnipotent solutions is to enable business as usual to proceed. Omnipotent thinking is now so widespread in relation to climate change that any troublesome aspect of the problem can apparently be dismissed instantly through an act of thought.

At the bus stop, I was in disavowal, operating in 'as if' thinking mode. I think its purpose was to avoid guilt while still feeling apparently good and virtuous. In a state of disavowal, I could write about the effect of climate change on my grandchildren without taking greater care to reduce my own emissions, and I could push my guilt about this, and push them, to the edges of my mind.

The New Imagination

The New Imagination is made up of elements that are very old and also very new. It is the caring imagination that we need for now.²² It is very old, because

the ongoing struggle between care and uncare is as old as humankind. Homer described this struggle in *The Iliad*: ‘destructiveness, sure-footed and strong, races around the world doing harm, followed haltingly by . . . [care], which is lame, wrinkled, has difficulty seeing and goes to great lengths trying to put things right’ (Homer, *The Iliad*, Book 9:11, lines 502ff, trans. M. Brearley, quoted in Weintrobe2012a).

In the New Imagination, care no longer appeases uncare. It is no longer led by the nose by uncare like an ineffectual parent clearing up after a self-centred, triumphant toddler running amok. Care, in the New Imagination, has come of age. It stands up to uncare. It represents the moment when the human race matures, starts to grow up and face reality.

The New Imagination recognises that because of our environmental and carbon crisis, we are a unique generation, tasked with a particularly heavy burden of care about climate change. The last generation did not have the full picture, and if we leave taking care to the next generation, or even to ourselves tomorrow, it will be too late.²³ The New Imagination recognises that we face a full-blown emergency, but also knows we can address it, and with existing technology.

One strand of the New Imagination is very new historically, because only now, with scientific and technological advances and satellite pictures, can we more fully appreciate Earth in her otherness, her majesty and also as fragile and with limits. We now can see that she comprises complex, interconnecting dynamic systems that support life. All this enables us to love her more fully and in a more mature way, and be very concerned when we see her damaged. The New Imagination helps us face our true dependency on and indebtedness to the Earth. It helps us give up and mourn the narrow-minded phantasy of her as an idealised breast/toilet mother to exploit and think we can control. It opens our eyes to the need to share resources with other humans and other species living now and in the future.

The other strand we need for the New Imagination to flourish is a deeper understanding of the mind and of culture. This enables us to take a more sympathetic and a more critical look at ourselves. It helps us to recognise that care is not best understood just at an individual level. Care flourishes when frameworks of care are in place, and it withers without these frameworks. I now move to frameworks of care.

Frameworks of care

A framework of care is a structure designed by people who care. It is a sign of background mindfulness. It does two things. It keeps destructive, uncaring social behaviours in check, and it actively supports caring social behaviours. Frameworks of care exist at all levels, from laws that prohibit violence and theft, to social groups that disapprove of certain behaviours while also helping people face life’s difficulties, to parents who understand how their child feels and also provide

discipline where necessary, to the individual inner moral code we have internalised that regulates our behaviour. Frameworks of care help us maintain our living, direct links with felt care. They also help us mend caring links when these have become severed. They can do this in many ways. We vitally depend on our frameworks of care, and are often not even aware they are in place, only noticing their effects when they start to break down. A civil society depends on them.

When architects build sustainable buildings, they build physical structures to keep people safe. With these structures, they are also building frameworks of care, and this is a profoundly important aspect of their work and the role they play. The frameworks of care they build are vitally necessary for mental health by keeping uncaring in check in psychological as well as practical ways. If we live in a Passive or Active House and travel on carbon ultra-light transport, our carbon emissions drop right down. If our buildings are designed to better withstand ravaged elements, we are safer. This enables us to feel that our survival is cared about. An important insight from psychoanalysis is that to be caring, we need to feel cared for. This starts in babyhood with parental care.

Architectural frameworks of care can bring us closer to people, nature and beauty in a way that helps keep our links with care alive. They help us reconnect with being citizens, not just consumers, in the way they arrange social space. All this expands our sense of self, boosts our creativity and connects us to others in a caring way. All this disrupts the self-idealising idea that we are somehow superior to some other people and to other species, and entitled to live cut off from them.

Notes

- 1 Susan Roaf (2013), *[2013 Global Green Building Forum] first session – Sue Roaf*, www.youtube.com/watch?v=hE3HcrA-Wa8 (Accessed 9 September 2018).
- 2 Culture includes mass media, government messaging, advertising, cinema, the arts and our social group culture.
- 3 I use the term ‘culture of uncaring’ rather than ‘uncaring culture’ to emphasise the active way in which this culture seeks to uncouple us from care – that is, to ‘un-care’ us. This culture is not just uncaring in a descriptive sense. It breaks links with care.
- 4 A culture widely called ‘American’ or ‘Western’ or ‘of the global North’ is increasingly recognised as largely responsible for rising carbon emissions. However, given its rapid spread to all corners of the globe in the period of financial deregulation since the early 1980s, and given recent shifts in global power relations, it is no longer accurate to talk of a global North/South divide. A huge poster hanging on the wall of the hotel of the Indian Government delegation to the 2014 World Economic Forum in Davos highlights this. It said: ‘India. World’s Largest Middle Class Consumer Market by 2030. Join India. Lead the World.’
- 5 Cutting felt links with care was written about by psychoanalyst Wilfred Bion in his (1959) paper ‘Attacks on linking’. In Bion’s model, links involve directly felt experience of a relationship with the other. The other can include reality. My discussion focuses on the way that severing links with experience leads to dissociation, or more properly, ‘dis-association’ from the part that cares. One might ask whether dissociation is present in Ben Van Beurden’s interview with Alan Rusbridger, then Editor of the *Guardian* newspaper. Van Beurden is CEO of Shell. In the interview, he acknowledged climate change and the need to reduce emissions, but simultaneously endorsed

Shell's expansion of fossil fuel extraction, including tar sands and drilling for oil in the Arctic. He said: 'I think about climate change all the time and I think about it not at all'; 'The biggest story in the world podcast: Episode 10, Shell', *The Guardian*, 28 May 2015, www.theguardian.com/environment/audio/2015/may/29/podcast-biggest-story-shell-ben-van-beurden-episode10 (Accessed 9 September 2018).

- 6 Locating the other far away in the imagination so as not to feel touched by them was described by sociologist Stanley Cohen (2000) as creating the 'distant other'. I have looked at dehumanising prejudice as one example of distancing the other through spatially rearranging the other as living apart (apart-heid), on the other side of the mental tracks, and through scapegoating and vilification techniques in order to avoid guilt and shame.
- 7 I have written of how the culture drives us to split our internal world into near and far landscapes, in which we relate to 'inferior them' from a separated-off position of 'superior us' (Weintrobe 2012a).
- 8 There are many examples of creating the distant other to stay in a psychic retreat. For instance, when economist Nicholas Stern wrote *The Stern Review* (2006) – which he has now acknowledged did not take the problem of climate change seriously enough – he used an economic model that gave inadequate entitlement to future generations. This is spatial distancing of 'those in the future', tucked away and hidden behind the equations. Stern is hardly alone in using the assumptions he did. There is widespread disavowal of genuine consequences for future generations in the models used by economists.
- 9 I find psychoanalyst Melanie Klein's (1940) concept of the internal world very useful to understand the way we form an internal representation of the external world, one that can be heavily influenced by phantasy. In Klein's view, relationships feature prominently in the internal world. This is because we are primed to relate and are primarily social as a species. She sees the internal world as literally 'peopled' by figures made up of realistic representation and distorting phantasy. My emphasis is on the representation of space internally, often envisioned as inner landscapes.
- 10 Psychoanalyst John Steiner (1993) discussed the way that we can form what he called a psychic retreat in the mind. This is an area, often imagined as a sectioned off place, in which we 'arrange' the internal world so as not to be troubled by various sorts of anxiety or feelings of loss. Here, I am suggesting that our culture helps foster a collective psychic retreat from anxieties and psychic pain about our damaging environmental and social behaviour.
- 11 Sociologist and psychosocial theorist Michael Rustin (2001) has written on structures needed to facilitate care. He says: 'In what containing social environments, can human beings tolerate recognition of the truth, and thus of each other's states of mind, desires, needs and sufferings? This is a rather fundamental question for political and social thought, and is one to which psychoanalysis still has a large contribution to make' (Rustin 2001, p. 6).
- 12 Fantasy spelled 'phantasy' indicates the phantasy is or is mostly unconscious.
- 13 See Keene (2012) for discussion of the Earth as a breast/toilet mother phantasy.
- 14 As Freud sagely put it, people may not be as moral as they would like to think they are, but they are more moral than they realise.
- 15 Strictly speaking, 'global warming' refers to the long-term trend of a rising average global temperature, and 'climate change' refers to the changes in the global climate which result from the increasing average global temperature. However, the two terms tend nowadays to be used interchangeably. For a discussion, see www.skepticalscience.com/climate-change-global-warming.htm (Accessed 9 September 2018).
- 16 Social psychologists have called this mindset 'instrumental' (Crompton & Kasser 2009; Darnton & Kirk 2011). Sociologists and social commentators have called it 'consumerist' (Alexander 2014; Bauman 2007; Hamilton 2003; Klein 2000) and 'extractive'

- (Klein 2014). A lawyer has called it pathological and institutionally psychopathic. He distinguishes between a psychopathic corporate culture and individuals who work for it. Psychoanalytic authors have given the mindset various names: 'narcissistic' (Lasch 1991), 'narrow-minded' (Brenman), one of 'arrogant greedy entitlement' (Weintrobe 2004), 'perverse' (Hoggett 2012; Long 2008) and involving a sense of 'manic triumphalism' (Segal).
- 17 See Philip Arestis (1992).
 - 18 See Weintrobe (2012b) for a discussion of how people came to realise after the failed Copenhagen climate summit that governments did not care about them at the level of their survival. It was traumatic to feel this uncared for.
 - 19 See, for example, 'Beyoncé admits to inauguration lip syncing', BBC News, 31 January 2013, www.bbc.co.uk/news/entertainment-arts-21284398 (Accessed 9 September 2018).
 - 20 Hanna Segal has distinguished between 'as if' and 'what if' thinking. The latter seeks to test a phantasy against reality, by asking what if the phantasy were true. The former ignores reality, and proceeds as if the phantasy were true.
 - 21 Argued by Hoggett (2012).
 - 22 Pope Francis's basic argument in his recent encyclical on climate change is that we need to care; Pope Francis (2015).
 - 23 'We are the first generation to feel the impact of climate change and the last generation that can do something about it'; President Barack Obama, quoted in Roberts (2015). But Obama does not appear to have embraced the New Imagination. At the same time as saying this, he gave Shell Oil the go-ahead to drill for oil in the Arctic. The danger is that this is the 'as if' disavowing imagination.

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13

MANAGEMENT BEFORE FABRIC

An interview with Irena Bauman

Irena Bauman with Ranald Lawrence and Kim Trogal

KIM TROGAL (KT): Could you tell us about how you have been working with the idea of resilience in your practice and research? What does resilience mean for you, and why is it important?

IRENA BAUMAN (IB): We gradually gained an understanding of resilience through the act of practising architecture. Over the past 25 years of practice, we continuously changed and adapted our client services in response to new policies, economic necessities, emerging technologies and environmental imperatives, as these rendered the existing processes redundant whilst presenting new opportunities. Adaptation has been a constant companion to the process of practising architecture.

The matter of resilience arose from the conundrum of how much adaptation we could undergo before we had to sacrifice our professional and personal ethics. The prevailing wisdom was to accept commercial, speculative projects and to aspire to work nationally and internationally in order for the business to grow. These values were in a direct conflict with our preference for sustainable processes and products and for quality of relationships and quality of life. We tried for a while to behave as commercial businesses are expected to. We secured awards, published our work in architectural journals, and dutifully attended breakfast briefings, launches and many networking events.

None of this activity was fulfilling or enjoyable, it just seemed to steal our time, but we continued until a painful learning experience gave us the courage to abandon these patterns of behaviour. After completing our first major project, a refurbishment of a one-mile-long promenade in Bridlington, we returned to site three years later to review how people were using it. By that time the project was published internationally, had won many awards, and attracted many invitations to present it. But we found a place that was vandalised by youths and damaged by severe, corrosive weather conditions,

and many of the hard-won design decisions undone by the maintenance team. Nevertheless, the invitations to present the scheme kept coming. We became aware of the inaccuracy of information circulated by the architectural media.

We followed on with visits to eight Stirling Prize-awarded buildings and found that, according to their users, all had significant design flaws, some so significant as to render parts of the building inadequate for their purpose. Our profession was in the business of promoting vanity and make-believe. We stopped attending networking events, stopped submitting projects for awards, stopped courting the professional journals and agreed to only work on projects within two hours of travel from the studio, gaining a great deal of valuable time and an enhanced quality of service for our clients, but risking the commercial viability of the practice.

What followed was an exercise in resilience – given these self-imposed constraints and the ambition to do socially useful work, we started to diversify the model of what the architectural practice could be. Innovation became a key tool for building resilience into the practice, very much as Sue Roaf observes in her chapter in this book.

In the last ten years we have made many innovations, such as forming a community interest company to undertake local regeneration work, establishing a research strand with its own income stream of grant funding, developing MassBespoke, a fully parameterised timber cassette construction system suitable for distributed manufacture, diversifying into academia, setting up a small development company and a fabrication company, and introducing a four-day working week for the studio to enable more time for personal life and interests.

So the quick answer to your question is that resilience has been a crucial ingredient of our practice, as it has allowed us to keep our professional and personal ethics central to the way we work and the work we do.

RANALD LAWRENCE (RL): In your practice-based research, two of your projects looked at retrofitting buildings, adapting them to meet some of the impacts of climate change. Could you tell us about these projects, and why you see the retrofitting or adaptation of buildings as a viable strategy for meeting climate change?

IB: We worked on two climate change-related research projects. Forty-five industry-led research projects were commissioned by the Technology Strategy Board within their Design for Future Climate: Adapting Buildings programme that ran between 2010 and 2014. The aim was to develop a greater understanding of the adaptation strategies that could be applied to commercial buildings to increase their resilience to the impacts of climate change. This was a new body of knowledge. Whereas a lot was already known about design adaptation for energy conservation and environmental sustainability, in 2010 there was very little research available on the impact of climate change on buildings.

Our multidisciplinary research was focused on adaptation strategies to prevent overheating up to the year 2080, the furthest date for which weather forecasts are

presently available. We developed new research methods and used emerging software tools and emerging climate data, all prone to frequent updates. We developed a detailed taxonomy of adaptation methods that included physical adaptations of fabric, ventilation, materials, technologies, spatial design, facilities management and behaviour adaptations.

The adaptations we identified were easily achievable and took into account future technological advances in the performance of materials such as glass and phase change boards, the concept of thermal comfort, and changes to occupation patterns of buildings and to patterns of work. All of these adaptations were modelled to determine their individual impacts, and the models were run for the years 2020, 2050 and 2080. We then modelled options for different combinations of adaptations and carried out Whole Life Cycle analysis to determine the combinations that were most effective and represented best value for money.

The results were very encouraging, leading to clear guidance on how buildings should be designed in the future for greater resilience. We established that climate change adaptations need to be developed on a room-by-room basis rather than a whole-building approach, as orientation, size, ventilation and occupation are critical factors in overheating.

We were able also to illustrate that adaptation strategies could be easily integrated into the maintenance cycles of elements such as windows and implemented incrementally as temperatures rise. Such strategies would not only provide successful adaptation to overheating, but would also facilitate weaning buildings off their current dependence on air conditioning, necessitated by a lack of consideration of overheating in the original design. We also illustrated that climate change adaptation strategies could save significant running costs over the life of the buildings we studied.

Sue Roaf comments in her chapter, 'If you can't measure it, you can't manage it.' Our research has provided measured case studies that illustrate how resilience can be introduced into buildings and the point at which these systems can no longer be adapted. The research was successful in providing measured evidence, but acting on this new knowledge proved to be a whole different story.

KT: In looking at different retrofitting strategies, you articulated differences between 'adaptations' and 'mal-adaptations'. What are these?

IB: The danger of isolating an issue such as climate change from all other considerations is that it is possible to underestimate the impact of current and future actions that can make overheating problems worse, adaptation measures less effective, and existing buildings less resilient than anticipated. We have named these actions 'mal-adaptation'.

One such mal-adaptation for overheating problems is the policy trend towards increasing insulation and airtightness – this will exacerbate overheating in the future and lead to a reliance on mechanical ventilation. The current trend for off-site construction is a further mal-adaptation as it is generating a

stock of buildings without sufficient thermal mass to moderate internal temperature variations. Rather than adapt, we are abandoning some of the best known and time-tested passive methods of managing overheating. Other examples are occupancy levels recommended in design guides from which internal occupant heat gains are calculated – these are provided in CIBSE guidelines as one person/10m², but the lack of available space in major cities and high land values are driving occupancy levels up to one person/5m². Similarly, CIBSE guidelines suggest occupancy hours of 10 hours per day, whereas many workspaces are used for 12–16 hours, or even 24 hours in the case of international companies. We also identified design mal-adaptations such as refurbished buildings where spaces designed for large gatherings were placed on the south side of the building, where the risk of overheating was the greatest, while partitions were introduced, preventing previously effective cross-ventilation from cooling the building.

KT: What's interesting is that through design-based research, your work has produced knowledge that others can concretely act on, but equally you have identified the ways and reasons people will not act or will not be able to act. In particular, you speak of the institutional and cultural barriers that stand in the way of acting on this knowledge. Could you tell us what these barriers are? Is this why you have spoken of 'management before fabric'?

IB: Yes, we coined the phrase 'management before fabric' in light of one of the major findings from our first climate change mitigation research project. Despite successfully illustrating through design, modelling, and Whole Life Cycle analysis that existing buildings, which incidentally were already beginning to overheat, can be viably adapted to passively cope with increasing temperatures, we found very little interest among developers and facilities managers, who were used to fixing problems with air conditioning and prefer to continue this practice. Adaptation to climate change is not on their radar, and reducing energy in use and carbon omissions in excess of building regulation requirements is of no interest as running costs are passed on to buyers or tenants.

We therefore focused our second research project on examining the barriers to implementation of adaptation strategies. We chose to work with a large institution typical of property-holding organisations: a museum in Yorkshire, which scored 395 against a benchmark of 413 projects in a Post Occupancy Evaluation of its environmental performance and human comfort.

Using the taxonomy of adaptations we had previously developed, we modelled options for adaptation strategies and demonstrated once again that it was possible to adapt the building for increasing temperatures, and also 'wean' the building off air conditioning all together, improving occupant comfort and lowering the whole building costs.

While reviewing these findings and the potential for the implementation of adaptation strategies with the management and staff team, we identified a

network of knotted problems blocking the dissemination of this knowledge, and ultimately blocking any possibility of implementation. The key causes of these blockages were existential (denial of climate change), managerial (lack of decision-making structures and knowledge dissemination) and legislative (lack of policy framework).

A denial that climate change is happening, and that we will need to arrest and adapt to its impacts or perish, is the existential, and probably the most profound, example of lack of action to adapt. Sally Weintrobe has already commented that there are different forms of denial. Some people believe that it will never happen, they negate the possibility of it. Others deny that climate change is happening, and most of us are in disavowal – we know that climate change is happening, but we are unable to come to terms with it and act.

More recently, other concepts are emerging from the field of psychoanalysis, such as Sally Weintrobe's concept of 'un-care' (Weintrobe 2014), suggesting that individuals both care and do not care, and that these sides do not communicate with each other. Most recently, a new attitude has been identified that reflects our slow progress out of denial: the lukewarmers (Nutticelli 2015) are a group that believe that the climate is changing but is relatively insensitive to the increasing greenhouse effect, and hence believe that climate change will proceed slowly enough as to not be a serious concern in the near future. In our current state between denial, un-care and lukewarmness, it is clear why adaptation of the built environment is not yet high on anybody's agenda.

There are also failures of management, illustrated here in one case study in detail, but typical of general failure of management, and these are extensive but important to list in detail to illustrate just how problematic this is to the development of resilience to climate change.

External political and financial imperatives trump the significance of scientific findings. The Management before Fabric study coincided with a dramatic downturn in the economy and a policy of austerity. Furthermore, more specifically to the research project, there were also complex management changes taking place within client organisations which created a great deal of uncertainty, making it difficult to take decisions.

The management structure of the organisation contributed to this inability to absorb new information and act on it. The management of the museum was integrated, at the time of the study, within an umbrella organisation of national museums. The decisions regarding investment into fabric were split between the two organisations, meaning that the museum had to bid each year to the national network of museums for maintenance funding. Capital funding could only be secured through one-year-long projects, and the national network set the priorities for capital projects.

Organisational priorities for both the national network and the museum were the collections and the visitor experience. The running costs, although of concern, were not an immediate priority for the organisation, and there

was no strategic plan for environmental sustainability. The organisation did not even have a plan for reducing energy or improving the use of other resources, despite having a sustainability officer who was appointed as an internal candidate having previously been exhibitions technician at the museum. His main area of activity was to carry out small projects to reduce carbon emissions, such as installing LED lighting. There was a general lack of knowledge of climate change and sustainability issues within the organisation.

More management problems kept emerging as our study progressed. Some of the operations of the museum, in particular collections, programme and visitor experience, were managed in-house. However, other key operational strands such as cleaning, security, services, catering and ICT were sub-contracted out. This seemed to have created a culture of silos, with no one being able to take full responsibility for driving through new thinking. Energy monitoring tools were already available to the museum, such as the Building Management System, but the available information was only used to control the conditioned spaces rather than to monitor and benchmark possible savings in energy use – it was acknowledged, for example, that the conditioned environment could be effective at slightly higher temperatures. This was symptomatic of a lack of consideration and forward planning throughout the organisation.

Furthermore, decisions regarding facilities management rested with a commercial arm of the museum network – they were the holders of the maintenance and project funding. Their organisational structure consisted of a Chief Operating Officer located in London, supported by a Head of Estates also in London, supported by a Head of Estates North located in York, and supported by Project Managers also in York. This Northern team was responsible for estate projects, of which the National Media Museum was one. Head of Estates North was aware of the research findings, but had no channels or mechanism through which to communicate these to the national management layers above, where the ultimate decisions on funding were made.

Further challenges to the already inadequate management structure were presented by ongoing restructuring, with key appointments pending and some staff acting on a temporary basis. There was literally no one who could make a final decision about investment, and it appeared that due to maternity leave and dates for reorganisation, this situation was to continue for at least another 12–18 months.

Finally, there were also legislative failures, made worse by current building regulations, which encouraged high levels of insulation to the detriment of thermal mass that could help keep buildings cool in future climates. The legal imperative to improve the Energy Performance Certificate rating led the museum to prioritise the addition of insulation to achieve shorter-term performance gains, locking the building into the likelihood of even greater overheating in future. Furthermore, the adaptations we proposed differed for

each elevation, in response to orientation and use. These different elevational treatments were not acceptable to the planning authorities, as the original 1960s building had uniform elevational design all around.

There is no current national plan of how the construction and property industries will adapt to tackle climate change, and no recognition by industry of the structural failings of the kind we have identified. Until an infrastructure of managing climate change adaptation strategies is in place, we are set to continue to procure buildings that will become 'stranded' assets in the future despite having the knowledge to do better.

RL: What do you think can be done to meet these institutional and cultural barriers?

IB: The body of research we have helped to develop demonstrates that we now have data and tools to allow us to design and implement adaptations which are necessary, possible and commercially viable. We have collectively developed the business case for adaptation strategies to be moved out of niche research into mainstream application.

We have identified that realignment of current management, legislative and behavioural structures are essential pre-conditions to implementation of adaptation strategies. The incentives for the adaptation of building assets need to come from the government, but there is already a sense of duty among designers to understand climate change and to develop skills that will allow us to design solutions.

For architects, this means a series of practical behaviour changes, including reaching across the disciplinary boundaries, gaining energy and carbon by investing in software, training ourselves to operate environmental modelling software and to fully understand the available data and its imperfections. It means integrating future climate change adaptations into the earliest designs decisions. Collaboration between the design team and their clients supported by a behaviour change specialist could be a way forward for individual institutions, and adaptation strategies could be incorporated into maintenance manuals as a standard requirement at the handover of a building.

Such changes will, in turn, require rethinking the relationship between architects and service engineers with a view to much greater day-to-day collaboration on design, and for the RIBA to modify the RIBA Plan of Work to reflect the different approaches to work stages in adaptation work. We also need further research into adaptation strategies, and for the results of all case studies such as Management before Fabric to be widely disseminated, including whole-life cost data, to help to make the case for 'adapt and save' strategies that are environmentally kind and commercially savvy.

RL: What insights have you gained through this research about how architects can contribute to issues of resilience to climate change at a neighbourhood scale?

IB: Conducting research into adaptation strategies has revealed possible technological responses to urgent climate change-related problems and led to a deeper

understanding of the lag between acquiring new knowledge and embedding its application within existing systems. We now understand that whereas empirical research is encouraged, financed and valued, and technological tools are widely available and will increase the accuracy of scientific knowledge in the future, the application of these is severely restricted by the shortcomings of human-made organisational structures as well as the limited human capacity to care for the long-term future.

These insights corroborate views expressed by Sally Weintrobe that a culture of un-care in the global North, stoked by the prevailing consumerism, actively works to break our links with 'the part that cares'. Her call for caring structures as a way of encouraging positive change has given us a theoretical framework within which to situate the aims of our practice – we want to play an active part in establishing a caring infrastructure.

Our research also corroborates Sue Roaf's suggestion that silos in the design professions have led to a plethora of architects who know little or nothing about how to design well-behaved buildings, and how to integrate and functionalise adaptive opportunities into their designs. Her concept of 'well-behaved buildings' has given us a clear definition of how best to use our skills in all future work.

But architects can also contribute to developing a fertile environment that can support and propagate our ever-advancing knowledge and ever-advancing technological fixes – an alternative economic and social value system to challenge capitalism and its business practices, as is illustrated by many other contributions in this book.

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DIALOGUE V

Resilience ethics and interdependence

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14

RESILIENT SUBJECTS

On building imaginary communities

Elke Krasny and Meike Schalk

We propose a shift in how to understand the notion of ‘resilience’.¹ Generally, *resilience* is defined as the ability of systems to cope with change.² Instead of the all too common framing of resilience in terms of systems, we discuss and reframe it here in terms of *resilient subjects*. This chapter reflects on feminist tactics for building resilient networks and *imagined communities* (as theorised by Chandra Talpade Mohanty 2003) which counteract societal challenges such as political, economic and social injustice produced by global capitalism and patriarchal power structures. These counter-actions are not only reactions to current material and historic conditions, but also proposed ways to act in future. More specifically, from our standpoints as curator (Elke) and architect (Meike), we foreground three examples relevant to feminist practices in art and architecture that have built imagined communities: one through a sustained act of resistance, another as an art piece and a third as a strike. We further discuss how these perform a transgression between the domestic and the public realm – a recurrent theme in feminist thinking – where architecture becomes the symbolic space of appearance (Torre 2000).

‘Subjects’ are understood here both as what are constituted as subjects (i.e. subjecthood) and as subject matter. The three examples of spatial practice that we discuss include the Mothers of Plaza de Mayo (initiated in Buenos Aires in 1977), the activist art project *The International Dinner Party* (organised by artist Suzanne Lacy in 1979), and the walks and research of the Precarias a la Deriva (initiated in Madrid in 2002). All three examples emanate from groups that share experiences and demonstrate an ability to connect and build up networks and communities. In different ways, the examples illustrate the transformation of individuals and groups, and the emergence of new subjectivities through the process of moving from singular to common practices, as well as the appropriation of public and hegemonic spaces that are given new meanings. We, as a

curator and an architect, building on our previous work,³ consider how community formation is spatialised, which is relevant more generally within feminist practice in art and architecture.

Drawing on Chandra Talpade Mohanty's work on transnational feminism, we connect her concept of 'imagined communities' and 'communities of resistance' with the notion of emerging resilient subjects, which counteract representational regimes and hegemonic power relations within globalised capitalism. We aim to understand how resilient subjects, through their transgressive practices, build lasting alignments between the personal, the social, the public and the domestic.

Through this discussion of concepts and examples, our first aim is to show how these feminist spatial practices create solidarity and connectivity by way of sharing resources and knowledge. Secondly, we seek to foreground how these practices counteract hegemonic power relations which affect violence through making and maintaining precarity. Finally, we are interested in how, taken together, practices of sharing and counteracting connect the domestic and the public space, transgressing historically constructed and locally situated boundaries between private and public. We argue that feminist practices reveal that a different understanding of these relations is needed in order to arrive at theorising and practising (as) resilient subjects.

Through these issues, we raise a number of questions central to our concept of resilience, which is social rather than technological, political rather than policy-based. What can we learn from practices like these? What are the spatial tactics that transgress historically forged boundaries between the private and the public? What are the forms of sharing, counteracting and connecting that are developed in response to the different crises at hand?

Becoming-subjects, becoming-community

Within the recent materialist feminist philosophical and political discourse, opportunities are identified for new social relations, community-building and new institutional practices that aim to foreground resilient futures and empowerment. A prerequisite for such positive change is the 'becoming' of different subjects (Braidotti 2011; Gibson-Graham 2008; Petrescu 2013; Stengers 2008). To understand the notion of 'becoming-subject', we refer to Rosi Braidotti: 'The subject is a process, made of constant shifts and negotiations between different levels of power and desire, that is to say, wilful choice and unconscious drives' (2011, p. 18). Braidotti further argues: 'It implies that what sustains the entire process of becoming-subject is the will to know, the desire to say, the desire to speak, think, represent' (2011, p. 257). Becoming-subject is not an individual activity, but an interactive collective process that relies upon inter-relations and social networks of exchange. Subjectivity thus involves significant sites for reconfiguring modes of belonging and political practice. These processes are mutually constitutive; they establish a 'common interest' and a 'common context of struggle' (Mohanty 2003, p. 11). Common subjects then become also a shared

resource where the conscious development of relevant common subjects is both a vehicle and an aim for becoming-subject.

Mohanty draws on Benedict Anderson's notion of 'imagined communities' (2006 [1983]) to move away from essentialist notions of community. While Anderson referred to community in terms of the modern construct of the nation-state, Mohanty (2003) uses this concept to point to feminism as an 'imagined community' of subjects with divergent histories and social locations, united in a common political struggle of opposition to forms of domination that are not only pervasive but systemic. She uses the terms 'imagined communities' or 'communities of resistance' (Mohanty, Russo, & Torres 1991, pp. 4–5; 2003, p. 47) to suggest commitment and potential alliances and collaborations across divisive boundaries. Such terms also suggest political rather than cultural bases for alliances. Community is not a given, a ready-made locatable entity. Rather, community has to be produced and reproduced. Community-building, therefore, can be understood as a complex process of becoming political by way of actively producing and reproducing the very politics of community. 'Community, then, is the product of work, of struggle' (Mohanty 2003, p. 104).

In our reading of both Anderson and Mohanty, the notion of community reaches far beyond the local. In Mohanty and others, the theoretical discourse on community encompasses global, spatial and temporal perspectives, which highlights less visible scales – the body, the household – but stresses interconnections between the intimate and the global (Christie 2006; Elmhirst 2011; Katz 2001; Nightingale 2011). Feminist thinking conceptualises embodiment in its material and emotional dimensions (Grosz 1994). Thus, feminist conceptualisations of politics and subject-formation posit gender as intersecting with ethnicity, age, sexuality etc., a constitutive process on all scales of analysis and action (Elmhirst 2011). In her introduction to *Feminism without Borders: Decolonizing Theory, Practicing Solidarity*, Mohanty states that 'feminist practice ... operates on a number of levels: at the level of daily life ...; at the level of collective action ... and at the levels of theory, pedagogy and textual creativity' (2003, p. 5). On all these levels, within public space and domestic space, as well as in terms of productive and reproductive labour, micro and macro variables are complexly inter-related and interdependent.

Imagined communities, or communities of resistance, are a means and an end. They are inherently unstable; they rely on transformative practices to come into being. These practices, as we will demonstrate in the three following examples of feminist community-building, emanate from transgressive activities, which draw and sustain new connections between the public and the domestic realm. This is how we understand and work with such practices here, and we use a special term to underline this premise: *resilient subjects*, continuously investigating what it means to find common ground by way of connecting, sharing resources, counteracting violence, hegemonic power relations and precariousness.

Imaginary communities of resistance across times and geographies

We analyse resilient subjects through three different examples, in order to examine solidarity and community-building across different times and geographies. Using a literal meaning of *resilient* as our starting point – at once flexible and strong, supple and tough – we will unpack the notion of *resilient subjects* in feminist practice with a special emphasis on activities of sharing, counteracting and connecting. Our focus is on how these three activities work together in fostering the emergence of resilient subjects as a basis for building communities against fragmentation, for transgressing essentialising notions of pre-given, stable entities of community, and for counteracting separations between domestic and public spaces.

Mothers of Plaza de Mayo: transforming public space

Our first example of resilient subjects features the silent manifestations of the Mothers of Plaza de Mayo, initiated in 1977 in the most important public space of Buenos Aires. The manifestations have gained considerable international attention and inspired similar ones in other places around the world.⁴ The manifestations involved women coming together to demand information and justice for their children and husbands who had ‘disappeared’ under the Argentine military regime between 1976 and 1983.⁵

The women first met incidentally at the Ministry of the Interior in their search for information about missing children and husbands. At the time, public demonstrations were strictly forbidden, and gatherings of more than two people in public space were promptly dispersed by security forces. At first, a group of 14 women came to the plaza every Thursday after work, wearing white kerchiefs to identify themselves to one another. The Mothers, as they became known in the international press later, circulated in pairs, occasionally switching configurations within the pairs to share information while observing the rule against demonstrations. In later demonstrations, the Mothers also shielded their bodies with cardboard signs representing their missing children and husbands. Eventually, they attracted the interest of the international press and human rights organisations.

The Mothers’ spatial appropriation consisted of quiet private acts of sharing personal issues, stories and photographs that gained public significance. Their manifestation succeeded because it endured over many years. Initially ignored by the police and national press, because the Mothers seemed to represent no threat, their presence developed into a ‘powerful architecture of political resistance’ (Torre 2000, p. 142). The phenomena of women circling the May Pyramid monument in the centre of the plaza, their heads clad in white kerchiefs, was so widely photographed that it has become a visual symbol of this resistance movement.

In her seminal article about the movement, architect and critic Susana Torre stresses the significance of the 30-year-long action for impacting politics, but also for transforming a previously marginalised group into one that remains widely recognised. This transformation is significant in a political climate that saw women either as politically and culturally colonised populations or as unintentional agents of a collective social project, but not as actively participating in change (Torre 2000). Torre foregrounds the tactical practices of the Mothers of Plaza de Mayo in successfully appropriating a hegemonic space – ‘the nation’s principal space of public appearance’ – on their own terms.⁶

Although the Mothers did not pronounce their protests as ‘feminist’, their spatial practice resonates well with bell hook’s understanding, where ‘Feminist movement happens when groups of people come together with an organised strategy to take action to eliminate patriarchy’ (hooks [1984] 2000, p. xi). For most of the Mothers, it was the first time they participated in political statements, the first time they positioned themselves politically in society. Their activities also significantly changed traditional understandings of gender representations and conventional assumptions of private and public spheres. This can be understood through the shift in their roles, from their more acceptable and traditional embodiments as wives and mothers to their emergence as resilient subjects. This emergence occurred both in spite of and because of the threat of police violence. Thus, with their struggle to establish human rights, they not only inhabited, but transformed the public realm ‘as transformative subjects altering society’s perception of public space and inscribing their own stories’ (Torre 2000, p. 141).

Torre relates the architecture and politics of the body with the architecture and spatial politics of the plaza. She credits the Mothers for their ability to establish presence by their own means, but also to appropriate an existing urban space, and giving it a new function and new symbolic meaning through shared actions of corporeal, social and activist occupation of the space. The Mothers are still active in various social and political projects, acting as a constant reminder of human rights. In this sense, the Mothers’ significance surpasses the specific agenda that initiated their original manifestations.

The International Dinner Party: celebrating global sisterhood

A second example to continue this discussion of resilient subjects is one that practices sharing and connecting domestic and public space. The simultaneous worldwide event, *The International Dinner Party*, took place on 14 March 1979:

Dear Sisters, We would like to ask you to participate with us in a worldwide celebration of ourselves. We are asking women in many countries to host dinner parties honoring women important to their own culture. These dinner parties, held simultaneously 14 March 1979, will create a network of women-acknowledging-women, which will extend around the world.⁷

This invitation was originally drafted by a group of California artists. Eventually, it fell to Suzanne Lacy and Linda Preuss to organise this simultaneous worldwide dinner happening to celebrate the opening of Judy Chicago's *Dinner Party*⁸ at the San Francisco Museum of Modern Art: 'Inspired by this work, several California artists want[ed] to expand the idea of honoring women from Western history to encompass living women of all cultures.'⁹

The International Dinner Party shares the celebratory mood of the 1970s US American feminists. It was also a moment when women of colour, feminists of colour, lesbian women and lesbian feminists had begun to challenge the notion of 'sisterhood' based on the generic category of 'woman'. *The International Dinner Party* points to an emerging understanding of sisterhood based upon concrete historical and political practice. Yet it still assumed that sisterhood could, in fact, be built on the basis of gender. The project both negotiates and celebrates a complex constellation among different feminist politics – that of sisterhood based on gender and that based on a common practice (including sharing dinner on a global scale). It also connected domestic spaces (where the dinner parties were held) and public space (the opening of Judy Chicago's exhibition at the San Francisco Museum of Modern Art).

The International Dinner Party art project, with over 2000 participants from different parts of the world, demonstrated the great extent of feminist organisational capacity in a pre-Internet era. Women held dinner parties in 200 places across Africa, Asia, Australia, New Zealand, Europe, North America and South America. Following the task assigned to them by artist and activist Suzanne Lacy, women collectively drafted messages at their own dinner parties and sent them off via telegram to the San Francisco Museum of Modern Art. Upon arrival, these telegrams were put on a map of the world by Suzanne Lacy in a performance that lasted several hours. The messages commemorated women important to the local communities, which ranged from elders, community leaders and grandmothers to artists, goddesses or activists. Many chose not to commemorate women from the past, but rather to use the telegrams to express demands for a feminist future. Some messages include references to the demonstrations of women in Iran that had begun on 8 March 1979. Some make reference to the struggles for women's sexual and reproductive rights.

In retrospect, the imagined community of resistance that was initiated by *The International Dinner Party* is constituted by all the telegrams and messages written by all the participants. The project demonstrates the complexities of situated feminist politics, even as it demonstrates the capacity to share resources and to network internationally. The women who hosted dinners opened their homes, shared meals, and invited friends and colleagues. They also shared their memories, their beliefs, their convictions, their demands and their claims with a museum audience. Thus, they connected their domestic space, in which they produced their contributions, with the public space of the San Francisco Museum of Modern Art. Read from a different vantage point, homes, in which the women hosted the parties for *The International Dinner Party*, appear as the primary sites

from which imagined communities of resistance can emerge. Domestic space, it appears, both provides the means of supporting and the means of connecting the emergent phenomenon of resilient subjects.

Precarias a la Deriva: politicising care work

In a third and more recent example, we explore the emergence of resilient subjects through activism and research, or, more precisely through a strike. The initiative *Precarias a la Deriva* formed at the feminist social centre La Eskalera Karakola in Madrid. Initially, it was a response to the general strike throughout Spain called by the unions in June 2002. This initiative stood for the non-representation of all those – mainly women – who work informally and invisibly, neither recognised by the unions nor affected by the legislation that had provoked the general strike (*Precarias a la Deriva* 2004). On the day of the general strike, a group of women decided to wander through the city and to ask other women, ‘What is *your* strike?’ From that common experience, a research project was organised with the purpose of building a network of those united by the precarity of their work, even if the types of work were highly diverse, for example ranging from freelance design to sex work. Ultimately, the *Precarias* demanded a ‘collective construction of other life possibilities’ (Ingrassia and Holdren 2006, p. 43) through a shared and creative struggle, breaking through the logic of individual maximisation and replacing the profit economy with an ‘ecology of care’.

As a method for research, *dérives* through the city were deemed adequate to encounter and learn about precarious work of women by moving through ‘quotidian environments, speaking in the first person, exchanging experiences, and reflecting together with women working in precarious and highly feminized sectors’ (*Precarias a la Deriva*). In contrast to the Situationist *dérive*, or drift,¹⁰ the *Precarias* state:

In our particular version, we opt to exchange the arbitrary wandering of the flaneur, so particular to the bourgeois male subject with nothing pressing to do, for a situated drift which would move through the daily spaces of each one of us, while maintaining the tactic’s multisensorial and open character. Thus the drift is converted into a moving interview, crossed through by the collective perception of the environment.

(*Ingrassia and Holdren* 2006, p. 34)

In their struggle, the *Precarias* consider precarity not as a condition that concerns some and not others, but as a tendency and process that is expanding to include more and more social sectors, which affects society as a whole. In this view, precariousness transgresses boundaries between private and public, involving migration policies, the conception of social services, working conditions and household structures. While precarity is usually considered a strictly negative

phenomenon, a term used to describe situations of vulnerability, insecurity, poverty and social exposure, the Precarias attribute a range of positive qualities as well. They argue for the accumulation of diverse knowledges, skills and abilities through work and life experiences that are under permanent construction.¹¹ By re-evaluating their own situation, the Precarias actively counteract generalising misrepresentations and homogenisation. Judith Butler sees precarity in its multiple characterisations as forming a starting point for political alliances against a logic of protection and security for some at the cost of many other people.¹²

For the Precarias, the development of affective connections is fundamental to overcoming the segmentation and isolation of precarious workers, whose life situations under post-Fordist working conditions demand permanent availability and limited labour rights, where time and care for others become scarce. Thus, they argue that the acknowledgement of social relationality as a crucial basis from which to act enables a new perspective of a 'logic of care' that enhances the status of care activities as political responses. It counteracts the common understanding of precarity as a threat because this 'logic of threat' cannot provide adequate answers. In contrast to this view, a 'logic of care' can be extended to a more collective and common notion – for example, a notion of a 'care community' or 'care citizenship', a *cuidadania*. Political-economic considerations, which followed a 'logic of care' as a starting point, would regard production and reproduction together, and thus divest the separation between private and public realms of its foundations.¹³

For that purpose, the Precarias called their strike a *care strike*. Here, a strike does not mean the suspending of care activities. On the contrary, care work was to be shifted to the centre, thus interrupting the existing order and politicising care work, which, under the prevailing political and economic dispositions, was devalued as being private, feminine and unproductive, and thus made invisible. Consequently, the conflicts of care work are seldom perceived and understood. The *care strike* intended to expose the problematic to debate (Lorey 2015), thus also offering a possibility to move from singular to common practices in which exchanges could be possible.

Concluding discussion: theorising and practising (as) resilient subjects

These three examples pose different notions of community and of resilient subjects. Across all three, *public utterances and visibility* are important for countering social atomisation. For example, discrimination and precariousness were raised as a political issue in Precarias a la Deriva (2004). Through sharing, counteracting and connecting, they reveal themselves as resilient subjects. The Mothers of Plaza de Mayo become resilient subjects through leaving their homes, occupying public space with their own bodies, and by making their personal anguish visible through subversive spatial tactics. In this sense, resilience takes on a broader

meaning, including resilience in emotional terms through painful existential conditions. Participants in *The International Dinner Party* connect domesticity and hospitality to the public institutional space of the museum, thus transgressing their geographical dispersion to co-produce a worldwide dinner that, quite literally, puts the politics of remembering women and feminist claims for the future on the map. The Precarias enter the streets and take up a spatial practice of *dérive* as a form of militant feminist research that transgresses boundaries of domestic space, workplace and public space. Thus, the Precarias expose how the isolation of subjects merely reinforces the conditions of precarity, and they claim, in fact, to be interdependent and separated only by false boundaries. For them, making a common cause, such as a care strike, is a step towards the formation of an imagined community of resistance.

Resilience is most often discussed in scientific terms – for example, to describe how ecological systems or technological systems can cope with change. It is sometimes used in the context of policy, but seldom to pose questions of politics, agency and positionality. What can we learn from these examples of resilient subjects? In this chapter, we argue that a wider concept of resilience is generated through feminist theories and practices. Such a concept of resilience can include, as we argue here, societal and political values expressed in the formulation of resilient subjects, in building imagined communities, and in terms of common causes concerning political, economic and social justice. Resilience and futures thinking are not part of Mohanty's work. However, we argue that the theoretical perspective that she advances can be extended to community-building as a basis for the emergence of resilient subjects.

The becoming of resilient subjects requires the will to know and the desire to represent (Braidotti 2011). Resilient subjects form imagined communities that cannot be assumed on the basis of gender, ethnicity or religion. They are never pre-given or stable entities. But, through their transgressive practices, they build lasting alignments between the personal, the social, the public and the domestic (Mohanty, Russo, & Torres 1991; Mohanty 2003). We propose feminist futures where solidarity and community-building are constituting parts. Such practices have the potential to transgress traditional boundaries and strengthen diverse claims to political and social change, altering assumptions, behaviours, processes and structures towards greater justice. The discussed subjects did that by appropriating public and institutional spaces through creative spatial tactics for changing structures from within. We conclude that feminist futures-oriented practices build communities, for opening an imaginary space for thinking real alternatives, and which transform real spaces for imagining alternatives for the future.

Notes

- 1 This chapter first appeared in Schalk, M., Kristiansson, T., and Mazé, R. (2017), *Feminist Futures of Spatial Practice: Materialisms, Activisms, Dialogues, Pedagogies, Projections* (Baunach, Germany: Spurbuchverlag/AADR), pp. 139–148.
- 2 See for example, 'Resilience dictionary', Stockholm Resilience Centre (n.d.).

- 3 See e.g. Schalk, Gunnarsson-Östling, and Bradley (2017) and Krasny (2014).
- 4 See also the *Saturday Mothers in Istanbul*, who came together following the example of the *Mothers of Plaza de Mayo*, in 1995–1999 and again since 2009 to raise awareness of state-sponsored violence and militarism and to demand that state-sponsored political murders be brought to light, as well as the installation of legal rights.
- 5 Torre (2000). Between 1976 and 1983, an estimated 9000–30,000 people were kidnapped under military dictatorship; many burial sites are still undisclosed, and many inquiries to the police about the fate of the ‘disappeared’ are still unanswered.
- 6 Hannah Arendt, quoted in Torre (2000), p. 141.
- 7 From the invitation letter, ‘An International Dinner Party to Celebrate Women’s Culture’, 1979, Archive Suzanne Lacy.
- 8 Judy Chicago’s monumental sculpture of the *Dinner Party*, based on women’s collective histories, has raised a significant number of debates within feminism. It was criticised for its essentialism (Griselda Pollock), for excluding women artists of colour (Alice Walker) and for reproducing the model of the master artist (Chadwick). See Chadwick (2012), p. 376. In her 1996 exhibition *Sexual Politics: Judy Chicago’s Dinner Party in Feminist Art History*, Amelia Jones critically engaged with the complex debates on sexual politics surrounding the work; Jones (1996).
- 9 Suzanne Lacy, from the invitation letter, ‘An International Dinner Party to Celebrate Women’s Culture’, 1979, Archive Suzanne Lacy.
- 10 Christel Hollevoet (1992) discussed the Situationist *dérive*.
- 11 From the invitation to participate in the first *dérive*, October 2002; Precarias a la Deriva (2004).
- 12 Butler (2009), p. 32, quoted in Lorey (2015), p. 91.
- 13 Lorey (2015), p. 93. For a discussion, see also Mies and Bennholdt-Thomsen (1999).

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15

RESILIENCE AS INTERDEPENDENCE

Learning from the care ethics of subsistence practices

Kim Trogal

The word ‘resilience’ has entered into our language through science, and as such it is not a word that is easily used in day-to-day life (Hine 2013b). From a scientific perspective, it concerns the management of human–nature systems, measuring and understanding the ways in which systems adapt, specifically their capacity to recover or evolve from a crisis. The term doesn’t tell us much about how to think critically of the ethical aspects of our lives. Moreover, as scholars in the field of urban and development studies have pointed out very well, resilience as an urban project can reinforce social and ecological injustices (Allen 2015). As the geographer Simin Davoudi noted, the unmediated translation of ecological resilience to social contexts has become: ‘highly charged with ideological overtones as it refers to self-reliance, [...] a quintessentially American idea, referring to the ability of people and places to “pull themselves up by their bootstraps and reinvent themselves in the face of external challenges” (Swanstrom 2008, p. 10)’ (Davoudi 2012, p. 305).

In response, this chapter aims to introduce care and social reproduction to our understandings of resilience. This necessitates a shift away from seeing resilience as something concerned with ‘self-sufficiency’ to something that involves ethical interdependence. By introducing some of the background of feminist work on care, the chapter seeks to highlight the ways that resilient practices require a commitment to social reproduction and mutual interdependency, taking examples of subsistence practices as a point of departure.

‘Subsistence’, in its *Oxford English Dictionary* definition, is ‘the action or fact of maintaining or supporting oneself at a minimum level’, but this emphasis on ‘minimum’ is somewhat misleading. A more critical understanding could follow Maria Mies and Veronika Bennholdt-Thomsen, who point out that it is a different mode of production, namely *a different material organisation of daily life* (1999, pp. 17–19). While involving ‘self-provisioning’, Mies and

Bennholdt-Thomsen explain it goes beyond this to include self-determination, and the ‘moral economy’ of such a way of life. The history of subsistence practices in Europe, which were prevalent until shortly after the Second World War, they explain, show that: ‘A well functioning network of neighbourhood-help existed as well as mutual aid, the values of the old peasant “moral economy” which survived also in cities’ (1999, p. 17). Similarly, Illich resurrected the word ‘vernacular’ to describe it – ‘a word that denotes autonomous, non-market-related actions through which people satisfy everyday needs’ (1980, p. 72) – and drew on the Roman meaning of ‘vernacular’ as ‘sustenance *derived from reciprocity patterns imbedded in every aspect of life*, as distinguished from sustenance that comes from exchange or from vertical distribution’ (1980, p. 71; my emphasis). Traditional subsistence practices are thus a special point of interest here, as they counter the idea that self-sufficiency takes place at the level of the household. The examples presented in this chapter aim to illustrate some of the collective and reciprocal dimensions of subsistence practices and highlight that, in producing resilience at a local level, they do so in ways that redistribute resources to counteract socio-economic vulnerability, rather than exacerbating it. Yet significantly, while they each illustrate different forms of social and ecological solidarity, they risk remaining *politically ambiguous* in how they do so. Who is included in a collective? Is ‘inclusion’ enough? And what dynamics, hierarchies and injustices nevertheless emerge in their informality? In considering how resilient practices might constitute an ethical shift away from the idea that individuals or communities ‘should be more resilient’ and ‘self-reliant’ in the face of austerity and crisis, I am not only interested in identifying their mutual and collective aspects, but also concerned to point to their political ambiguity, and therefore points of ethical potential in the future.

The chapter begins by introducing feminist perspectives on care and social reproduction, before discussing some of the ethical implications and contradictions of the marketisation or commercialisation of care and other kinds of affective labour. The chapter then proceeds by looking at examples of non-market, rural subsistence practices to elaborate this form of resilience as interdependence – an interdependence that holds ethical potential, but raises certain political tensions.

Acknowledging care and dependency

In 1995, the political theorist Joan Tronto wrote:

Because the provision of care in human society has almost always proceeded by creating rigid hierarchies (castes, classes) by which some are able to demand the services of others, care has basically been of little interest to those in positions of power. The exclusion of care from politics grows out of an unwillingness to look at care on its own terms. [...] [C]are is a

complex process that ultimately reflects structures of power, economic order, the separation of public and private life and our notions of autonomy and equality.
(1995, p. 12; my emphasis)

Making the question ‘Who is caring for who?’ central reveals hierarchies, dependencies and exclusions. Not only are all relationships of dependency spatial, but their spatiality often conceals the dependency, and thus ensures their continuing devaluation and exploitation. In the field of architecture, it is perhaps more common to visualise dependency and sustainability in terms of materials and energy, such as researching the provenance of materials, using calculations to understand a material’s embodied energy or its water footprint. We are less apt to consider dependency in social terms. From an urban and architectural perspective, this means considering all who make our cities and regions liveable: teachers, cleaners, youth workers, communities workers, those who grow food, and so on. In our current economic mode of organising, we cannot actually maintain the societies in which we live, materially and socially, without acknowledging the interdependencies of care and social reproduction.

Across the disciplines of political science and economics, feminists have long argued that the independent ‘subject’ is something of a myth (e.g. Feder Kittay 1999; Feder Kittay & Feder 2003; Tronto 1994). Equally mythical is the idea of cities such as London being ‘independent’ or capable of being an independent city-state.¹ We are not easily able to acknowledge our dependencies on others in the context of neoliberal ideology and society, and as Richard Sennett noted, in our culture dependency has acquired a shameful status (Sennett 2003, pp. 63–64). In a time that values the ‘self-sufficient’ individual and considers others burdensome, Sennett argues that ‘the fact of social needs’ is denied, as are the ways that ‘inequalities are inescapable facts of social life’ (2003, p. 64).

A number of feminist activists and scholars (e.g. Maria Rosa Dalla Costa, Silvia Federici, Leopoldina Fortunati, Maria Mies, Nancy Folbre and many others) have brought care and domestic labour to the fore, challenging not only ideas of dependency, but ideas around the notion of the ‘unproductive’ housewife and the location of critical knowledge.² Critiquing the Marxist perspective, they showed the myriad ways that ‘the worker’ and ‘the economy’ are made possible by all the work that is disavowed and undervalued.³ They brought the realm of reproductive labour into political economic analyses, and in seeking the valorisation of unwaged work, they identified the ways that nurturing and taking care of other living beings and our environments was productive in the way it creates the material base for life, sustains relationships and produces subjectivities. As Silvia Federici has argued, social reproduction is ‘not only central to capitalist accumulation, but to any form of organization’, therefore ‘reproductive life and work are at the center of any transformative project’ (Federici 2016). Precisely because it is productive in these ways, feminists have argued that they constitute a possible site from which transformation can occur. In this sense, resilient practices

constitute a potential locus for developing neighbourhood-level resilience that brings different values, both ethically and economically.

Care and measure

In considering the values social reproduction brings, there is something ethically difficult in acknowledging that as a nation, the UK buys and imports care, such as social workers, nurses, midwives and cleaners. This import reproduces structural inequalities through the gendered and racial division of work (Gottschlich 2013, p. 8) and emerges from our dominant economic model and lack of social sustainability, which is displaced to different, poorer regions. The sociologist Arlie Hochschild argued that love and care ‘have become the new gold’ as an imperial form of extraction from poorer regions by richer ones (2005, p. 41).

Care labour involves concrete physical activities and at the same time involves more intangible qualities, feelings and motivations. Just as the labour of reproductive work is devalued and commonly seen to be ‘outside’ the economy, it is the affective dimensions of care that are also considered to be beyond economies or money, and even antithetical to them. During a seminar together, the writer and cultural activist Dougald Hine noted: ‘you might pay me to look after your children [...] but you cannot pay me to care about them’ (2013a). This is an interesting provocation in the context of what Hochschild called ‘emotional labour’. She argued that even when emotions are put to work and managed in capitalist contexts, those feelings are often still genuinely felt to varying extents.⁴ Amidst the increasing prevalence of the ‘commercialisation of feeling’, Hochschild suggested that in response, ‘as a culture we have begun to place unprecedented value on spontaneous, [...] authentic or “natural” feeling’ (2012 [1983], p. 128), and the idealisation of authenticity seems to be at play in the idea that care or love cannot be bought. The idea is that if care is ‘authentic’, it will not be as a result of the payment, but of course it may emerge in spite of it.

In the varying imports of care there are nevertheless moral boundaries and physical limits to how much emotional labour can be outsourced before the relations themselves, and the people involved, are damaged. In his work on the gift, Lewis Hyde pointed to similar effects, arguing that if you have something a friend urgently needs and you ask them to pay you for it rather than simply giving it to them, you may have altered and even damaged that friendship (Hyde 2007 [1983], pp. 58–75). A ‘first world’ example Hochschild gives is of a busy parent who has outsourced the planning of their child’s birthday party. Hochschild relays the child’s dismay upon realising their parent had not made this effort, but had paid someone else to do it (Hochschild 2012 [1983], p. 137). The ethical relations we have involving care bring different economies with different rules, which money and commercialisation are prone to disrupt and undermine.

As Marx famously revealed, money, as a representation of value, is thus also representing *a social relation* (Harvey 2010, p. 33), and in different ways, anthropologists can also teach us about this. In David Graber’s book *Debt*, for example, he

recounts the cultural anthropologist Laura Bohannan's arrival in rural Western Nigeria (Bohannan 1964, in Graber 2011, pp. 104–105). As a gesture, one of the neighbours offers her three eggs as a gift to welcome her. Unsure how to respond, she follows advice from two neighbours who explain that yes, she should give something back (even money) as acknowledgment and as thanks, but the return gift must not be three eggs nor should it be the exact cost of three eggs, it must be something that is just a little bit more, or just a little bit less. The reason is that if things are not quite equal, it allows the continuation of exchange. Graber explains that to give back exactly what she had received would be to annul the relationship (2011, pp. 104–105). An attempt to make it equal, to 'bring it back to zero', would communicate that you no longer wanted anything more to do with this person.

Money in some contexts achieves the opposite of the gifts in this story, in that its function is precisely to equalise. David Harvey, in his introduction to Marx, explains the function of money in capitalist societies and commodity market exchange very well. As a 'universal equivalent', money is a representation of value, needed for exchange, and at the same time is a medium of its circulation (Harvey 2010, p. 56). As a measure, £1 should be worth £1 irrespective of its bearer, and therein lies a quality, its disembedded-ness. When we pay with exact and equal measure, we return the counter to zero, and this is what ensures, we are told, individual freedom. Money gives things which are not equal the impression that they can be equally measured, and suggests that things can be counted. When someone says 'you cannot buy' care, love or friendship, the reference is to the attachments and ethics involved in those practices, with the belief that these feelings and responsibilities exist beyond a monetary economy and are defined as such. Yet while the value of care can be quantified in the sense that there is a price attached to the task that some individuals are willing and able to pay, the primary point is that *when we quantify things, we change their qualities*. In the case of care work such as nursing, political scientists have discussed the ways its quality is often undermined by its commoditisation, thus further exacerbating the crisis of care and social reproduction (Gottschlich 2013, p. 8). In the case of outsourced domestic work, care is displaced, and a deficit created elsewhere, along a series of chains.

Resilient practices, then, need to firstly recognise already-existing interdependencies and orient their own organisations and practices to create more ethical relations. And secondly, some of the complexities of ethical relations in monetarised contexts raised above point to the imperative of organising against the marketisation of relationships between people, and between people and the environment. In the creation of a different material organisation of daily life, subsistence practices potentially offer another perspective on relations of dependency in non-monetary contexts.

Subsistence practices and ethical interdependence

Ivan Illich once suggested that subsistence labour is intimately connected to our ethical lives. He wrote that 'people who live on wages and therefore have no

subsistence household, are deprived of the means to provide for their subsistence and feel impotent to offer any subsistence to others' (1980, p. 6). Illich then recounts an anecdote of a Mexican man who moves to Berlin and is shocked to find a society where no one shares with those who need it most. In Mexico at that time, he considered that generosity and hospitality would be offered without question. The man finds that in Berlin, compared to those in Mexico, everyone is much richer and more comfortable, but everyone behaves 'as if' they are poor (Illich 1980, p. 6). For Illich, this is the result of dependence on a wage, of not being in control of your own subsistence and therefore of your own future. What Illich does not discuss at this point, but does appear to be ethically significant, is rather the '*common*' dimensions of subsistence practices. These are practices that exist within groups rather than individuals, and their ethics is a cultural aspect of their economies. Examples of the ethical, cultural dimensions of subsistence practices are present in the historical or traditional forms of commons, as well as in later rural village and peasant life (discussed further below).

Historically in England, commons were spaces for collective subsistence practices and would have involved, for example, the right to gather wood for fire, the right to take fish from a stream, gather nuts, graze animals on common pasture land, grow food for your self and for animals, and so on. The work of feminist scholars like Silvia Federici and historians like Peter Linebaugh helps us understand that these practices of the commons were not divided and remunerated differently (Federici 2004; Linebaugh 2008; Neeson 1993), but rather would acknowledge and work with conditions of interdependence, both socially and ecologically. They stress the ways that many of the activities were part of an economy that were also bound up with the relationship to the environment. Linebaugh describes some of the instances of sharing responsibility, maintaining things collectively such as irrigation and fences. He gives examples of reciprocal exchange, such as that by allowing animals to use the pasture, they provided manure to fertilise the soil, and allowing pigs to roam at certain times meant they fed on acorns, thus removing something poisonous to other animals, and so on (Linebaugh 2008). The commons was both a collective economy and a democratic system of environmental management, with strict, place-specific rules about what could be done when. Practices of taking were regulated by seasons, and the number of animals in pasture (stint) was regulated by mutual agreement and so on. Commoners could never take too much from the space which was supporting them. The rules were strict, but they were democratically agreed upon annually or bi-annually by the commoners. They set their own rules where their decisions were based on their own knowledge and experiences of the space (Thirsk 1984, p. 36). In the language of resilience science, what can be found here is a 'self-managed system' with 'immediate feedback' (Biggs et al. 2012).

What 'immediate feedback' means in this context is that there was necessarily a very direct relation to the future, in which the actions of commoners directly affected themselves, their family, neighbours and community. If too many animals were put on pasture, the land would degrade, reducing its capacity for others and

for the future; if things were harvested too soon or too much, the supply would be reduced for others or for the following year. Participating meant taking responsibility, and as such, it produced a different kind of ethical space.

As Maria Mies and Veronika Bennholdt-Thomsen write, 'commons presupposes a community' (1999, p. 163), no commons can exist as such without a group to care for it. Commons across the world have sustained and been sustained by communities for millennia. As, Peter Linebaugh says, commons 'are entered into by labor' (2008, p. 45), and he, along with others, argues that when commons are viewed as 'resources', be they seas, forests, cultural heritage or knowledge, the very labour that is involved in their making is concealed (2008, pp. 243–244). When we reduce commons to resources, not only do we lose sight of the care labour involved in both creating and maintaining them, *we also transform our relationships to each other, and to the environment*. When commons are seen as resources, we risk entering into an 'accounting' frame of mind. Counting signifies a shift away from amicable relations in that it is rather the practice drawn on when a relationship has broken down, characterised by a lack of trust. Just as with the need to 'bring things back to zero', when we count everything, we change our relationship to the environment and to others to one that is no longer ethically common.⁵

The enclosures of commons and the rise of consumer markets gave rise to 'the problem' of welfare (Federici 2004, pp. 82–85; Polanyi 2001 [1944], pp. 84–89). Dismantling the commons, and with it rights to subsistence, generated a landless, rural poor. To those out of work or with insufficient wages, parish or public support was offered, for a time. But providing a 'right to live' constituted a barrier to the establishment of a labour market (Polanyi 2001 [1944], pp. 84–89), and still today, state assistance draws criticism from those who see a problem with a system that allows people to live without (waged) 'working'. In terms of welfare, not only was the access to the means of subsistence and autonomy cut by privatising the space, but importantly so were the social ties connected with that space (Polanyi 2001 [1944], pp. 84–89; Federici 2004, pp. 82–85).

Commons without a space: women's rural, domestic economies and production

Silvia Federici in particular shows how that the enclosure of commons brought with it the modern separation between production and reproduction, and the different kinds of values attached to them. Yet, even after the enclosure of the commons, rural household practices in the late nineteenth and early twentieth centuries reveal some 'common' qualities and responsibilities to others, where mutual practices existed around food and food preservation, such as drying, pickling, conserving, as well as the timing of certain activities, such as the slaughtering of animals, which were done as part of an economy and community of mutual aid. I will try to explain what this means with examples from the Eco Nomadic School.

The Eco Nomadic School is a mobile and temporary school for the mutual learning and teaching of eco-civic practices in different regions of Europe. It brought together a network of people of different backgrounds across varying European locations and was organised by four partners: the architecture practice aaa (France), AGENCY, a research group at the Sheffield School of Architecture (UK), the artist group My Villages (Netherlands and Germany) and the Foundation for Community and Local Development, Brezoi (Romania).⁶ The aim of the school was to 'reinforce democratic values by the transfer of skills and knowledge on issues of resilience in different urban contexts' (Rhyzom n.d.)

During one of the workshops organised by the artist Kathrin Böhm in Southern Germany in 2012, we visited the Farmers' Museum in Frensdorf.⁷ The museum, whose buildings originate from the late 1600s, documents everyday peasant life and culture as it would have been in the early twentieth century. Their exhibition *Sauerkraut and Ketchup: A Journey through Three Centuries of Stockpiling* (2012) was specifically about the history of food preservation, and through this exhibition one could see that in this rural peasant situation, just as in the commons, everyone was responsible for their future in a very direct way. Their economy and provisions were directed to the future, where you accumulate and store to survive, rather than to profit. Resilience science suggests that in any resilient system, there must be some slack, some give or reserves in order that a crisis can be absorbed or there is adequate capacity to respond (Biggs et al. 2012). In the case of German peasant life at this time, the curator explained, the reserves were not only directed towards survival over the winter, when there would be less produce, but one in every four years you could expect to have a poor harvest, and one in every ten there would be serious failure and death. Preserving and conserving are protection for the future, and pickles, the curator suggested, are common to many cultures across the globe. These resilient practices thus point to a very different logic than the capitalist's engagement with 'futures' as markets, whose uncertainty is an opportunity for speculation.

In the museum, there is an example of a traditional peasant's house as it remains today. This house in former times would have had every space, every niche, crammed with food storage. Living here, you would have needed to know which herbs or wild plants you could pick, when to harvest things, how to protect crops, how to safely preserve different kinds of food, drying, storing, pickling, jams, wines, vinegars, eggs, curing meats, and so on. These practices require a very high level of knowledge and skill, which were also part of a broader economy, not just within the home. In this rural context, each person (specifically, each woman) had a responsibility to undertake these life-preserving tasks, not only for herself or for her family, but often for others when they experienced a crisis. It concerned responsibility in the village, because there would also be a time when you would be the one in need. But such an offering was, of course, not universally extended. The practices of the peasant and the farmer have notoriously been tied to national identity, and were used ideologically to forceably evict others, particularly Roma and Jewish people. The Nazi

idealisation of this rural life is now worryingly being re-invoked by far right groups in America today (Pearce 2017). So while these practices can tell us about resilience and mutuality, their historical connection of community to 'the land' demands that the questions and rules of mutual arrangements not only be made explicit, but point to the urgent fact that new resilient practices will need to cultivate an ethics and politics of governance whose participants and beneficiaries extend well beyond the exclusionary categories of race and 'local' communities.

Spaces for a more common life

During the workshop, some of the women expertly made sauerkraut in a traditional way, using a cabbage slicer (Figures 15.1 and 15.2). The slicer is around 1 metre long, with sharp blades that are angled very precisely. What interested me about this object was its use and distribution, as this would have been a shared object and not everyone would have had one nor had to store one. Objects like this would have moved across the village and across the community. As we were making our sauerkraut, the women told stories of the 'cabbage man', who would travel through your village. The women explained that you would not grow your own (huge) white cabbages for sauerkraut, but would have bought them from a travelling farmer when in season. So these moments and events of mutuality are not only tied together by objects, but marked in your calendar. In this rural context, there is no space you could point to as a commons, but there are objects that are held in common and events that mark a more common life.

In the workshop, we visited Haus der Bauerin (roughly translated as 'house of the female farmers'). This pre-war building housed women's collective activities, where some tasks were done together, and in which you could share facilities such as an apple press, a slaughter room, a laundry room and, later, freezers. Whilst some of the spaces in the Haus der Bauerin have been replaced with other things like meeting rooms, the apple press and slaughter facilities are still in use today. These were and are an interesting spatial proposition, in that through a building, not only can collective domestic activities be accommodated, but status and visibility are given to domestic work. However, as the sociologist Elizabeth Myer Renchausen explained to us, such status is double-edged. There were a number of facilities such as these in Germany at that time, and by socialising it and according it status, they were also an attempt to make housework more attractive to women and keep them away from the 'real work' of agriculture.⁸ In this respect, new resilient practices and the work of resilience, even if socialised, will need to attend to the wider politics, especially the gender politics of their organisation.

Through the Eco Nomadic School network, workshops also took place in a small town called Brezoi in Romania. In Brezoi, there are a number of inhabitants who still perform a high level of subsistence work, and again these women and men have very high levels of skills and knowledge of making, growing, cooking, looking after animals and making medicines. During our

FIGURE 15.1 Cabbage slicer at the Farmers' Museum, Frensdorf, Germany.

Photo: Kim Trogal

time in Brezoi, we all remarked that the level of hospitality we received was exceptionally high, and especially remarkable as, materially speaking, there is less money. After a long walk in the mountains, we dropped into our host Micaela's garden, who was able to welcome 24 of us there in her courtyard, with fresh walnuts and home-made wine (Figure 15.3). During a trip to the surrounding mountains, two of our hosts kindly produced a feast for 24 people out of their

FIGURE 15.2 Participants in the Eco Nomadic School workshop making sauerkraut at the Farmers' Museum, Frensdorf, Germany.

Photo: Kim Trogal

backpacks. During the trip, we reflected on the ethical nature of these actions and the nature of hospitality. Why would a private space become more common? Is it something culturally specific to this group of people, or is it somehow connected to economy of reproduction and care, and thus also resilience? How do we account for our experiences here in light of unstated power relations between more wealthy, Western European visitors and Eastern European hosts? Some of us speculated that, as Illich had stated, this different materialist arrangement of economies and relations gives rise to generosity. Namely, this different access to subsistence can be linked to a certain ethical capacity, giving rise to different ethics and ethical spaces, be they common ones or hospitable ones.

From these few examples, we can understand resilient practices as ones that are not about self-sufficiency per se, but something more like acknowledged dependency and a network of mutuality. In this chapter, I have tried to argue that subsistence work and care work are not only practices of resilience, but ones that point to the ways that *resilience involves ethical interdependence*. Each example illustrates a form of ecological and social solidarity that bring specific ethical qualities, that if 'counted' or given a price, would undermine

FIGURE 15.3 Micaela's garden, Brezoi, Romania.

Photo: Kathrin Böhm

the very resilience they seek to achieve. From the perspective of architecture, the key points will be to better understand the ways that care and social reproduction are not only key to any future projects and organisations, but constitute an ethical imperative.

These local examples of resilient practices are, however, politically ambiguous considering the historical exclusions and violence against other races, or the risks of entrenching stereotyped gender roles and capacities through 'traditional' forms of work. As the quote by Joan Tronto near the beginning of the chapter states, to make care the centre of attention means paying attention to power, class, exclusions and hierarchies. Practices of care both bring differences in power, conflicts and negotiations and demand attention to them. All situations where '*some demand the services of others*' (Tronto 1995; my emphasis) are often relations between unequal partners. In the mutual practices of subsistence cited above, while solidarity is offered, it is done so based on often undisclosed social rules. This demands a *practice of care* – not care as a 'benevolent' sentiment, but one that starts by paying attention to and engaging with such conditions. It means engaging with the politics of care to ensure that new resilient practices resist such tendencies and push their ethical possibilities, extending opportunities for genuine participation in a different material organisation of everyday life.

Notes

- 1 Doreen Massey (2007) dispatched the myth of London's independence some years ago in her book *World City*.
- 2 American sociologists Dorothy Smith and Nancy Harstock in particular pointed out that the 'housewife' constituted an epistemological standpoint, akin to Marx's epistemological standpoint of the factory worker. See Smith (1987 [1974]) and Harstock (1987 [1983]).
- 3 For instance, the worker who has been clothed, fed, educated (e.g. even at the most basic level, such as being toilet-trained), socialised, their living conditions cleaned, all by unpaid others.
- 4 For example, in Hochschild's case studies of flight attendants, some could not 'switch off' their upbeat, smiling persona, while others had to create distance between themselves and their role to protect themselves from stress, from becoming burned out and so on (2012 [1983], p. 18).
- 5 This is also problematic about resilience's associated term 'ecosystem services' as an accounting approach.
- 6 For more information, see Böhm, James and Petrescu (2017).
- 7 See www.bauernmuseum-freundorf.de (Accessed 9 September 2018).
- 8 Elizabeth Myer Renchausen in informal conversation at the EcoNomadic School, Haus der Bauern, 2012.

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16

THE ORGANIC INTERNET AS A RESILIENT PRACTICE

Panayotis Antoniadis

Introduction

The idea that digital and physical space are increasingly interconnected, and that architecture and urban design should be conceptualised beyond buildings, streets and so on, is rather old and well understood. What is less clear is the fact that digital space is socially and politically ‘produced’ in similarly complex ways to the physical. It is thus subject to power structures, manipulation tactics, fundamental rights, borders and constraints, despite its perceived ‘infiniteness’.

The Internet, the Cloud, and the various digital platforms that mediate our everyday interactions are not ‘neutral’ spaces that simply facilitate communication or offer services. They are designed spaces which, exactly like architecture in physical space, deeply influence our online (and offline) behaviour, and thus all aspects of our social, economic and political life. Thus, the right to resilience, the right to the city and other emancipating social projects should include ‘high levels of participation’, ‘continuous learning and experimentation’ and other resilient practices (Petcou & Petrescu 2015), for digital space as well as physical ones.

A key requirement for such resilient practices to be collectively developed, is the existence of locally owned and managed information and communication technology (ICT) infrastructure and services. These can prove critical during natural disasters (an earthquake), economic disasters (a global economic crisis) or even political disasters (a coup d’état). They can also illustrate the way towards more participatory, ecological and resilient ways to build and use technology in our everyday life through the transfer of power from big corporations to local formal or informal institutions.

Unlike housing or food, however, we do not have the experience of ‘how things were made in the past’. The Internet was created as an organic yet global network from an early stage, and the percentage of people connected to it in a

specific area was, until very recently, rather limited, with a few exceptions (Schuler 1996). In other words, 'doing things locally' is an element of the Internet's future, not its past, and this poses both challenges and opportunities. On one hand, there is no tangible example of how to build an Internet from the grassroots, and we do not know what the possible roles of the different local actors should be in this process. It is difficult even to imagine this possibility, although the required technology is already available and there are good reasons to use it in this way (Antoniadis 2016b). On the other hand, the 'local Internet' could be perceived as an advanced form of communication in cities, and not as a backwards approach to development, as sustainable and resilient solutions in other domains are, often mistakenly, perceived (Kallis 2017).

In a resilient city, how would the underlying ICT infrastructure look? Would it be owned and managed through local cooperatives, as in the cases of housing and agriculture? Would every neighbourhood have its own servers, platforms, wired and wireless connections? Or would ICTs belong in the 'global sphere' – a centrally managed infrastructure meant to interconnect different regions and cities across the world? Or perhaps the reality would be somewhere in the middle, with points of centralisation at the district or city level. Whatever the case, would it look like today's commercial industrialised Internet, or would it be more 'organic'?

The answers to those questions need to take into account the energy requirements of digital communications, their design and governance, and their corresponding social, economic and political implications (Fuchs 2017). This is essential, since the Internet and ICTs more generally are much more than 'dump pipes', transferring digital information from point A to point B. They include data collection, management and filtering services, as well as user interfaces that prioritise certain actions over others, and include many other design decisions that significantly affect the way they are used and their corresponding outcome (e.g. Tufekci 2014).

The more ownership and control citizens have over the underlying network infrastructure and software, the more opportunities are offered for developing sustainable solutions and resilient practices according to the local environment. DIY networking is an umbrella term for different types of grassroots networking technologies that today allow various forms of experimentation in this direction. It offers an example of another, more organic, way to build communications networks that promotes self-expression, face-to-face interactions and diversity. A resilient city needs the option of an organic Internet, one whose infrastructure is built, owned, designed, controlled and maintained by local communities, and one that satisfies our basic needs for knowledge, information and communication. Consumption and geographic limits should be also considered to promote a healthy lifestyle that encourages physical contact and conviviality, and allows for intimacy and local governance.

This objective is more challenging than it sounds. An important reason is that the popular Internet platforms that mediate a significant portion of our everyday

communications are becoming more and more efficient at managing vast amounts of information. They are becoming more and more knowledgeable about user interaction design that increases dependency and addiction (or ‘stickiness’ when described as a performance metric). This renders their users more and more addicted and dependent on them, subject to manipulation and exploitation for commercial and political objectives.

This situation could be characterised as the ‘second watershed’ of the Internet in the context of Illich’s analysis of the lifecycle of tools, such as medicine and education. Here, those ‘tools’, which were initially very useful, after a certain point come to dominate society for its own benefit and survival as institutions. Like the institutions Illich discusses, the Internet in its early stages was extremely useful. It dramatically increased our access to knowledge and to people all over the world. However, to achieve this, it came to rely on big organisations offering efficient and reliable services at a global scale. The survival of these services and platforms now depend increasingly on the participation of people and on the exploitation of the data they produce. This creates a vicious cycle between addictive design practices and unfair competition which breach the principle of Net neutrality, and unethical uses of privately owned knowledge of human behaviour, generated through analyses of the data produced from our everyday online activities.

Today, the main aim of online platforms is to maximise the total time spent online as much as possible and to maximise the amount of information exchanged – not only between people, but also between ‘things’! Their profitability depends on the processing of huge amounts of information that produces knowledge which can be sold to advertisers and politicians. Like the pharmaceutical companies and schools described by Illich, they create and maintain a world in which they are very much needed. This also explains why corporations like Facebook, Google and Microsoft are at the forefront of the efforts to provide ‘Internet access to all’, and why at the same time local communities face so many economic, political and legal hurdles to building, maintaining and controlling their own infrastructures.

It is important to state that the argument of this chapter is not motivated by a romantic ‘small is beautiful’ or ‘local is better’ ideal, but by an urgent need to diversify the ways that ICTs mediate our everyday life. Just as living organisms can be threatened by the lack of bio-diversity, our digital sovereignty and self-determination will be more and more endangered the less Net-diversity exists. Moreover, Net-diversity is not only important for reasons of democratic governance and independence – it is a matter of social, economic and ecological sustainability.

To this end, DIY networking could be seen as a ‘tool for conviviality’ as defined by Illich (1973), who used the term ‘conviviality’ to ‘designate the opposite of industrial productivity’, meaning the ‘autonomous and creative intercourse among persons, and the intercourse of persons with their environment’ and ‘individual freedom realised in personal interdependence and, as such, an intrinsic ethical value’.¹ Indeed, DIY networking operates according to certain

limits, stimulates collective action and creativity, and guarantees access to all members of the community. Understanding in depth the key technical and social aspects that need to be addressed in this context will help citizens and communities to imagine and put in place such novel uses of ICT.

Do-it-yourself networking

Wired communications are more energy-efficient than wireless, but they have increased deployment costs and limited flexibility. So, although a truly organic and sustainable Internet built from scratch should heavily depend on a wired infrastructure, it is through wireless technology and grassroots movements that today local communities can actually claim their rights to the Internet and develop organic alternatives to privatised infrastructures and commercial services.

In comparison, considering the implied analogy between communication and food, organic urban gardens might not be able to cover the nutrition needs of a city in a sustainable way, but they do provide a means for building awareness and stimulating citizen motivation and engagement. Similarly, wireless DIY networks might not provide the optimal solution in terms of resource and energy usage for certain communication needs, but they are very effective tools for the emancipation and appropriation of ICT technology by people (Antoniadis & Apostol 2014).

Even in cases where local authorities do participate in the deployment and management of network infrastructures for the common good, wireless solutions offer a means of experimentation and divergence from the status quo, which helps to sustain diversity and adaptability to change. From a practical perspective, they also offer a non-intrusive and privacy-preserving way to allow for more 'intimate', anonymous yet *de facto* local, communications between those in physical proximity by connecting users to each other on the same subnetwork, without need to record their GPS location. But let's explore in more detail how DIY, or community, networks work.

A wireless router, which is a special-purpose computer, can do more than just connect a device to the Internet. It can also host a server: a virtual announcement board for a block of apartments, an online guestbook for an urban garden, a file-sharing platform for a workshop, and many more 'self-hosted' Web applications like WordPress, Nextcloud and Etherpad, which anyone can host on a private Web server and address with a local (free of charge) URL. They can also appear automatically on a splash page or captive portal when one opens one's browser or connects to the network (as is often the case in airports, cafes and hotels). If the router is equipped with a second antenna, it can easily connect to a similar router residing in the coverage area, the size of which depends on the type of antenna and other environmental factors. The first antenna can then be used to allow people with their personal devices to connect to the network, and the second to exchange information with the neighbouring router. Each router then becomes a 'node' in a small network. Anyone who connects to one of them can access the

people and services offered by the others. As more nodes get connected, larger areas are covered and a community can be formed – initially by the owners of the nodes, and eventually by everyone in the area.

Of course, one cannot easily build a whole network like this by oneself, but it is not difficult to build a single network node using cheap hardware (such as a Raspberry Pi computer) and free self-hosted software (see <http://mazizone.eu/toolkit> – Accessed 9 September 2018) to deploy the set of local services and applications that fits a specific context (Antoniadis 2016b). Community wireless networks have been under development since the late 1990s by tech enthusiasts and activists advocating for a more open, neutral and democratic Internet (Antoniadis 2016a; Medosch 2014). They include a mix of local services, such as file sharing and livestreaming (AWMN.net and Ninux.org) and the provision of Internet connectivity. Freifunk.net, WlanSlovenja, Sarantaporo.gr and many more focus on this aspect in particular.

There are important differences between various models of governance and the concept of the community itself (Antoniadis 2016b; Navarro et al. 2016). Freifunk follows the ‘free Internet for all’ approach and depends mostly on voluntary contributions from its members to offer Internet connectivity. On the other hand, Guifi.net places significant focus on the concept of the ‘commons’, implying concrete boundaries and resource management rules. It has developed a unique model (Baig et al. 2015) in which the network infrastructure, including fibre cables, is treated as separate from the services it is involved with providing.

Community networks like Freifunk.net and Guifi.net take advantage of the unlicensed Wi-Fi spectrum to create wireless backbone links without the need to access expensive infrastructure. An antenna on a roof can offer Internet access if it connects to anywhere within (typically) 50km² of its line of sight that has connectivity. Of course, solutions for a community or municipality may also include the deployment of locally owned wired infrastructures, like the case of B4RN in the UK. Although there are numerous stories of successful community networks around the world, these infrastructures face significant hurdles through legislation that favours big commercial Internet Service Providers (Dulong de Rosnay et al. 2016). Similar to the legal fights against farmers that keep their own seeds, the deployment of local broadband solutions is often being considered an illegal or prohibitively expensive option for local authorities or non-profit organisations’ activity.

Why do-it-yourself?

Despite the critical role of community networks in providing affordable Internet access to underprivileged populations, it is important to realise that DIY networking³ is a good idea even if the Internet is ubiquitous and free for everyone – a position that may appear extreme. For example, DIY networking enables the creation of network infrastructures offering alternative options in case of natural disasters, as proved to be the case during Hurricane Sandy, when

people relied on the RedHook Wi-Fi initiative in Brooklyn (Baldwin 2011). There are also many political reasons why one should consider the use of local networks for supporting local online interactions related to privacy, surveillance and self-determination (Antoniadis 2016b). Despite their significance, these reasons alone cannot easily motivate people to engage in the creation of DIY networks in their neighbourhoods. And even if someone might trust Facebook and Google to store and analyse their private information for their own commercial purposes, there is still an important social threat created by the domination of these global platforms – namely, social alienation and the lack of location-based collective awareness.

Focusing on this social dimension, DIY networking has some characteristics that could help designers resolve the tension between anonymity that allows for freedom of expression, and identity that helps to build trust and community in more desirable ways than the corresponding mega-platform-based solutions. In other words, they can use DIY networking solutions to create a balance between the anonymity offered by modern cities and the social control in traditional local communities by generating ICT-mediated location-based collective awareness with low costs in terms of time invested and privacy. The most relevant metaphor here is the sidewalk which Jane Jacobs (1961) praised as a place for essential informal interactions between strangers that can achieve a very delicate balance between privacy and public exposure. If carefully designed, hybrid ICT applications that enable spontaneous information sharing between strangers can offer new ways to support the capacity of the sidewalk in contemporary cities to generate local knowledge and a sense of belonging. But instead of relying on private ICT platforms managed by commercial companies, DIY networking offers the option to stimulate and empower citizens to use their creativity for setting up local, freely accessible networks hosting context-specific collective awareness applications.

Still, one could always ask, ‘Why not host all these nice applications on a server accessible through the Internet or local wired solutions?’ The answer typically depends on the specific environment, but there are four important characteristics of wireless technology that make it an interesting candidate for building an organic Internet from the bottom up:

- All potential users of a local wireless network are in de facto physical proximity.⁴ The option of anonymity, in addition to being technically feasible, is also much less intimidating than in the case of global online platforms. This can facilitate playful and open interactions between people who enjoy exchanging information with those in proximity, but with ‘no private commitments’ (Jacobs 1961).
- A DIY network needs to be set up and deployed by someone who has access to the built environment, such as a resident with a well-located balcony, an owner of a central store, or a local institution with the authority to install street-side infrastructure. This can ensure that the local network is designed

and customised by members of the community, ideally in an inclusive and convivial manner.

- Wireless networks are much easier to deploy than wired, as they don't require the laying of cables that can be very costly both in terms of human resources and accessibility of public infrastructure. They are also inherently mobile, allowing for creative and flexible uses, but also for provocations challenging the status quo that are less intrusive than graffiti, for example, but much richer as a means of expression.
- Being tangible infrastructure themselves, wireless networks can be naturally embedded in other artifacts and urban interventions, such as a public display, a coloured bench, a phone booth or even a mobile kiosk, and they can create naturally hybrid digital and physical, spaces that encourage temporary participation and playful engagement. This also enables the inclusion of non-users, as in the case of the Berlin Design Research Lab's Hybrid Letterbox (Unteidig, Herlo, & Reiter 2015) and Polyloge (see www.design-research-lab.org/projects/polyloge-1/, Accessed 9 September 2018).

Finally, a local ICT infrastructure which facilitates communication exclusively between those who can easily meet face to face could be designed exactly for this purpose. Thus, energy efficiency would not only be the result of the lower energy required when communication takes place through local wireless networks instead of transatlantic links and huge data centres that waste a significant amount of energy for processing and manipulating data for commercial or political objectives. It would also be the product of people's ability to spend more time meeting their social and psychological needs away from their computers and mobile devices – an effect that a local-only communications network cannot guarantee, but could be (better) designed for (see also Antoniadis 2016b).

Despite the many good reasons why local DIY networks make sense, there is still little understanding of their potential value and little willingness to invest in their infrastructure and specialised services. The good news is that such local networks do not need to be introduced as a replacement for the Internet, but as alternative local solutions which allow for experimentation and Net-diversity and which can be complementary to global services. Net-diversity could be indeed the ultimate argument which may be effective amidst current economic, social and political crises, because people realise they can no longer assume things will always remain the same, and they need alternatives for the exceptional times ahead.

Concluding notes

Like money, food, medicine, education and transport, there are places in the world where people have too much Internet, not only in terms of energy consumption, but also more than needed for a healthy and balanced life. On the other hand, there are many people (more than 50% of the world's population)

who are practically disconnected and thus deprived of basic knowledge and communication services. Most worryingly, the promise of connecting the world comes from big corporations which see in the disconnected more data and more power, while the connected are getting more and more alienated and addicted by the practices of the same corporations.

If one wants to be pragmatic, one needs to realise that during the transition to the organic Internet, we will not be alone in the world. Most importantly, we will not be able to afford losing global services offered by the Internet today which cannot be provided at the local level. A global infrastructure is therefore required, and corporations will always exist to compete with local solutions in providing local services. So, in addition to a global vision, we also need a plan for the transition, for scaling up, and for the formation of potential synergies with similar initiatives around other common resources such as food, housing, water, education, healthcare and the economy.

The concept of ‘virality’ is relevant here: in a world where communication is so easy, both good and bad ideas can travel incredibly fast and all that is needed perhaps is the right twist, a good and easily replicable idea that can turn things around even in moments when everything seems to go from bad to worse. This brings to mind the ‘think global, act local’ concept, with the subtle difference that the global thinking is not about the ‘system’ itself, but about its ‘seeds’, and this is again an important concept in agriculture that needs to be introduced also in the Internet domain.

Similar forms of local action or better tools for conviviality have been gaining a lot of attention. These include, for example, complementary currencies, cooperative housing models, and grassroots education and healthcare. Those and other examples of commoning activities will need sophisticated ICT tools to help make efficient use of human resources and improve accounting, trust-building and collaboration. The vision of local DIY networks might be promoted by such complementary local commoning activities as a compatible way to build the ICT solutions required for their successful operation. In the other direction, treating network infrastructure as a commons can also provide inspiration for the management of other common resources, and act as a triangulator for stimulating social contact and community-building.

Acknowledgements

This chapter is an edited re-publication of the chapter ‘The organic Internet: Building communications networks from the grassroots’, in Giorgino, V. and Walsh, Z. (eds), *Co-Designing Economies in Transition* (Basingstoke, UK: Palgrave Macmillan). Compared to the original version, it has been significantly reduced in length and includes improvements according to suggestions from the editors of this book and the Spanish translator of the original chapter, Patricio Gibbs. The original chapter appeared initially in German for the book project ‘*Die andere Stadt*’, *Paranoia City*, edited by Hans Widmer and translated by Thomas Raoseta.

The research leading to this work has been partially supported by the EU Horizon2020 projects MAZI, H2020-ICT-2015, no. 687983, <http://mazizone.eu>, and netCommons, H2020-ICT-2015, no. 688768, <http://netcommons.eu>.

Notes

- 1 For a similar treatment of the concept of conviviality in the context of the Internet, see (Ippolita 2015)
- 2 The longest wireless link with Wi-Fi is currently 382km (www.cnet.com/news/new-wi-fi-distance-record-382-kilometers/; Accessed 9 September 2018), but such links require ideal conditions to achieve
- 3 DIY networking is a term that emphasises the importance of local applications and services, ranging from simple single-node networks to city-scale community networks. See https://en.wikipedia.org/wiki/DiY_networking (Accessed 9 September 2018) for the history of the term and alternative formulations like ‘do-it-together’, ‘do-it-with-others’ etc.
- 4 Technically speaking, it is possible to have access to a local-only network from a distance through devices that are connected both to the Internet and the local network. But in the context of an explicitly framed ‘local-only’ service, I would consider this an ‘attack’ which is always possible technically.

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17

LIVING RESILIENCY

Between planning and the grassroots:
an interview with Daniel D'Oca

Daniel D'Oca with Kim Trogal and Doina Petrescu

KIM TROGAL (KT): Could you perhaps start by telling us how you have been working with the idea of resilience in your teaching and practice?

DANIEL D'OCA (DD): The term 'resilience' is probably overused at this point – and there are certainly some good criticisms out there about it – but I think it's a useful word, in part because it foregrounds human agency. Our work has always been inspired by De Certeau. In some of our earlier work, we looked at how people 'make do' with architecture that's maybe not so great, and transform or appropriate it in surprising ways (De Certeau 1984). In this work, we undertook ethnographic research to better understand how people perceive and use the everyday spaces that surround them. One of our earliest projects (In the Meantime, Life with Landbanking; Figures 17.1 and 17.2) was a theoretical proposal for what to do with a dead shopping mall in upstate New York. Through patient detective work, we learned that people were using the remains of the mall to do what they didn't have space to do elsewhere (vend, practice driving, birdwatch etc.). Rather than proposing to replace the mall, we proposed a handful of small, inexpensive architectural interventions aimed at helping people do what they were already doing. In another early project, Improve Your Lot!, we noticed (also through patient detective work) that Detroit homeowners who stuck it out through decades of disinvestment were starting to spread out – expanding their property by accumulating lots that others abandoned. We carefully documented this phenomenon, and argued that this was an unplanned, unacknowledged and yet entirely sensible response to depopulation and disinvestment.

I might also mention our research on Naturally Occurring Retirement Communities (NORCs) in this breath. A surprisingly high percentage of older New Yorkers are aging in 'towers-in-the-park', a much-maligned mid-century planning typology that was characteristic of large-scale residential

FIGURE 17.1 In the Meantime, Life with Landbanking project. Photo of Dutchess Mall. Photo: Interboro

development in the 1950s–1970s. This fact might seem less than ideal on the surface: conventional wisdom about tower-in-the-park developments – passed down from critics like Jane Jacobs, Robert Goodman and New Urbanist-minded practitioners – is that they are difficult to live in, much less age in. To this day, these ‘marvels of dullness and regimentation’, as Jacobs put it, are put on trial for exacerbating – if not causing – a slew of urban pathologies, from poverty to crime to social isolation. Perhaps surprisingly, though, the tower-in-the-park typology can work quite well for seniors. Tall buildings make elevators a given; wide, smooth-surface hallways easily accommodate wheelchairs; superblocks provide communal park space; and common space on the ground floor is ideally suited for senior care offices, activity rooms and other community uses. Moreover, while they are often criticised for being inward-facing and detached from their surroundings (Jacobs lamented that they were ‘sealed against any buoyancy or vitality of city life’), in reality, many tower-in-the-park developments are well integrated into their neighbourhoods, and have a very porous edge that enables residents to easily access neighbourhood amenities.

There are two ways to think about this. On the one hand, the tower-in-the-park, like the shopping mall, the post-industrial city and countless other

FIGURE 17.2 In the Meantime, Life with Landbanking project. Activities at Dutchess Mall.

Source: Interboro

maligned architectural and urban typologies, has proven surprisingly resilient. Or you could say that people are resilient – that people are pretty good at making lemonade out of life's lemons.

More recently, we have been using the term 'resiliency' the way most others these days are using the term, namely as a quality found in communities that can bounce back, especially from sea level rise and other effects of climate change. Here the goal is to increase options. Grids are said to be more resilient than cul de sacs, for example, because grids offer navigators more route options, and thereby mitigate the likelihood that the removal of one street will render large areas of the territory inaccessible. If one way of getting somewhere or something doesn't work, there is always another that will. In this sense, planning can make more places resilient by giving people in those places more options about where to live, where to work and how to get around. Suburbs are thought in this sense to not be very resilient because many suburbs were built exclusively for wealthy, white, car-driving nuclear families – a fact that has made it difficult for suburbs to adapt to today's demographic realities.

DOINA PETRESCU (DP): The notion of ‘grassroots regionalism’ that you and your practice have put forward seems to suggest a new approach to regional planning. Could you tell us what this idea is and how it works? Why is ‘grassroots regionalism’ needed in building resiliency?

DD: Especially here in the United States, the problem with planning is that it offers local solutions to regional problems. Housing affordability, transportation, the effects of climate change: these problems can’t be solved by municipalities alone. To cite an obvious example, sea level rise doesn’t care about municipal boundaries; efforts to make one municipality safer by, say, erecting a sea wall within its municipal boundary will therefore be either ineffective, or – worse – create additional flood hazards to neighbouring communities.

This isn’t the fault of planners; thanks to home rule, local decision-making is privileged. In fact, we as planners have very few opportunities to plan regionally. There are regional planning organisations, but with few exceptions, these are merely advisory, and operate in the private or non-profit sector.

Regional decision-making is therefore required to create a built environment that is socially, economically and environmentally sustainable and just. But how can regionalism be achieved when what’s rational, comprehensive and in the region’s best interest and what’s implementable, fair and in the interest of any given municipality are two different things? A mayor who campaigns on ceding authority to a larger unit of government is unlikely to get elected.

‘Grassroots regionalism’ is a term that recognises the need to shift public consciousness around these matters. For our Living with the Bay project, we considered how design can help grow a consciousness about municipal interdependencies (Figures 17.3 and 17.4).

We did this in two ways. First, we identified instances in which what’s right for the region could be tailored to help meet local needs and achieve local goals. Second, we centred each of our design opportunities on a natural feature – a freshwater marsh, a bay, a creek and the beach – that is inhabited by multiple municipalities. In each instance, irresponsible, unsustainable development practices have led to the erosion of the natural feature, a fact that has undermined their ability to protect residents from severe weather events, as well as decreased their recreational potential. In our design opportunities, we proposed to leverage the inter-municipal connections that these natural features provide by restoring them in a way that simultaneously enhances them as regionally significant public spaces.

KT: You have pointed out in the past that a number of initiatives, like ‘common interest developments’, that might appear to be good examples of resilient neighbourhoods in the USA are actually contributing to the recurrence and embeddedness of racism, to such an

FIGURE 17.3 Living with the Bay project.

Photo: Interboro

FIGURE 17.4 Living with the Bay project.

Photo: Interboro

extent that you have spoken about the ‘resiliency of racism’. Could you tell us about this, and how do you understand this embeddedness as being connected to the built environment?

DD: Thanks primarily to the Fair Housing Act,¹ the traditional weapons of racial exclusion – racial covenants, racial steering, racial zoning, mortgage discrimination etc. – have been outlawed. But if the removal of traditional weapons of race-based exclusion from the battlefield has made it more difficult to divide along race lines, it certainly hasn’t made it impossible. Indeed, the post-Fair Housing Act era has seen a remarkable proliferation of loopholes and counter-policies and practices that effectively neutralise anti-discrimination laws with remarkable (and remarkably sinister) creativity. In the book, we look at how, in recent years, white communities have proposed ‘blood relative ordinances’ that require tenants to be related by blood to their landlords, kinship ordinances that require tenants to secure a letter of recommendation from an existing resident, and ‘exclusionary amenities’ that members of a community pay to maintain because the willingness to pay for it is an effective proxy for other desired membership characteristics (for example, race). Common Interest Developments (CIDs) are another weapon in this arsenal of exclusion. In them, residents have the benefit of amenities that, as individual households, they would not otherwise be able to afford (e.g. a golf course or a swimming pool). CIDs afford their residents a certain amount of control over who gets to live in them. This is maybe not so bad if you are a community of stargazers and want to regulate light emissions, but the Covenants, Conditions and Restrictions (CC&Rs) that CIDs use to regulate the behaviour of residents can be racist and classist. By banning things that are thought to be associated with a particular class – CC&Rs have restricted aluminium siding, barbecue grills, lawn ornaments, basketball hoops and even American flags – CC&Rs can be a means of saying, effectively, that certain types of people are not welcome here. This is all to say that yes, racism has proven remarkably resilient. Where there is a will to exclude, people have found a way.

KT: **You speak about the work of planner as ‘detective’ work, and indeed in the work you mention, such as the NORCs or abandoned malls, your approach to practice is one of close observation, listening to people and things that are often ignored, particularly those who might be the most vulnerable and marginalised by contemporary urban production. What are the ethics of this approach, and what kinds of relations do you have with those communities that you work with? Do you think such an approach helps build resiliency?**

DD: Yes, I guess I’ll add here that this approach is not new. Two key figures here are the architect/planner Denise Scott Brown, who has written (many times in many ways) that architects and urban designers have been too quickly normative, and the sociologist Herbert Gans, who has written (many times in many

ways) that 'planners [should not] monopolise wisdom about goals and values – diversity is valuable, and people are entitled to live in any way they choose, unless that way can be proved to be destructive to them or their fellow men' (1994, p. xi). Both are very sympathetic to a lot of things planners tend to hate: strip malls, suburbs etc., in part because they see how people use them and make them work. More recently, this kind of cultural pluralism, or Socioplastics,² has been championed by people like Margaret Crawford, Crimson Architectural Historians and others.

DP: As an architect and urban designer, you work as a teacher and researcher at Harvard University and at the same time run your practice Interboro. How do you see the relation between the two? And what is the role of practice in your academic research, and vice versa?

DD: I'm actually an urban planner. I was not trained as an architect or urban designer. In any case, yes, I teach interdisciplinary studios at the Harvard Graduate School of Design that invite architects, landscape architects, urban planners and urban designers to find surprising ways to move the needle on certain problems we're facing here in the US. So instead of a programme, I give my students a clear mission, and invite them to find their own way of accomplishing this mission. For example, my most recent studio focused on refugee resettlement. Today, there are over 65 million refugees worldwide. In the architecture community, efforts to help deal with this humanitarian crisis have centred on the design of refugee camps. Especially in the US, however, the architecture community has paid less attention to refugee *resettlement*. So I invited my students to work with local refugee resettlement organisations in St. Louis, Detroit, Cleveland and Akron to identify proposals at a range of scales aimed at helping refugees effectively navigate and thrive in post-industrial, rust belt arrival cities. The ideas they came up with were really surprising and amazing. Students are great at thinking creatively about what design can do. It's tremendously inspiring, and it's why teaching is so important to practise: it keeps me hopeful and inspired.

Notes

- 1 In the United States of America, 'The Fair Housing Act is a federal statute that prohibits discrimination in the sale or rental of housing, as well as in residential real-estate related transactions such as advertising, mortgage lending, homeowner's insurance and zoning. The law makes it unlawful to discriminate on the basis of race, color, religion, sex, and national origin, disability and familial status.' Definition taken from the online glossary: <https://uk.practicallaw.thomsonreuters.com> [Accessed 9 September 2018].
- 2 'Active Socioplastics' was the term used by the Smithsons to describe their approach, in Denise Scott Brown's terms: 'canvassing the street life for ideas on how to design housing where the benefits of neighbourly relations could be maintained' (Scott Brown 2011, p. 75).

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DIALOGUE VI

Scales of resilience
concerning the city, the
region and globalisation

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18

GLOBALISATION, RISK AND RESISTANCE

The production of new spaces of conflict and resilience

Axel Becerra Santacruz

This chapter focuses on the challenges that contemporary Mexican communities are experiencing in the face of new trends and processes linked to globalisation and its attendant social conflicts and risks. In these conditions, the meanings of concepts such as sustainability and resilience require reconceptualising in ways that are not reliant on conventional Western approaches. In particular, the concept of resilience, understood to mean constructive adaptation to risk (Folke et al. 2002), is often merely an ideological concept meant to transfer responsibility for confronting serious problems generated by the effect of globalisation onto communities and individuals, despite the fact that the responsibility lies with larger macro-economic institutions and corporations (Puyana & Romero 2006; Stiglitz 2002, 2006).

The chapter examines the tensions produced when global forces come into conflict with long-standing communities, natural resources, values, capacities, and the priorities of actors and institutions' territories of the global South. It argues that different conditions in the global South demand an alternative understanding of sustainability and resilience, which are otherwise Western concepts, that can and should be redefined by local concerns. It takes as its point of departure the current battles for the rich sources of raw materials and lucrative economic resources in Michoacán's southern territories in Mexico, alongside human mistreatment, multicultural diversity, rapid growth and change, and difficulties of governability.

The central argument here is that adaptation to the 'invisible' and transformative forces of globalisation is more likely to take the form of *resistance*, which itself may help to generate resilience. To explore this claim, the chapter focuses on conditions in the indigenous southern territories of the Mexican state of Michoacán and the ways that a parallel system of governance based on traditional social cohesion developed alongside a formal legal framework for

dealing with struggle and insecurity. The municipality of Cherán is in the hinterland of indigenous communities of the state of Michoacán, and here citizens decided to organise themselves around demands for justice in order to tackle a disturbing situation of struggle and social conflict. In the face of state failures to accommodate their demands, namely to reduce explosions of violence, citizens turned to self-organisation, self-defence and, ultimately, self-government. This chapter thus provides one example of how collective action (resistance) came about in a local community of Cherán, and tries to make sense of how and why this occurred.

Background: from ‘import substitution industrialisation’ to liberal globalisation

Like many other developing countries since the 1980s, Mexico has been moving toward a liberalised trade regime after a long period of ‘import substitution industrialisation’. The Import Substitution Industrialization (ISI) model, implemented after the Second World War, was based on the premise that a country should attempt to reduce its foreign dependency through the local production of industrialised products (Baer 1972). This approach was the main trade and economic policy adopted by the nationalist Mexican government, and aimed to produce development and self-sufficiency through the creation of an internal market. This model worked by having the state lead economic development through nationalisation, subsidisation of vital industries (including agriculture, power generation etc.), increased taxation and highly protectionist trade policies (Street & James 1982).

The model was gradually abandoned in the 1980s and 1990s, with some explanations suggesting that ISI-related policies created structural indebtedness, with the IMF and World Bank insistence that market-driven liberalisation aimed at the global South should be achieved through structural adjustment programmes (Puyana & Romero 2006). In the last two decades, market-driven liberalisation and investment patterns are having a dramatic impact on the precarious balance of the Mexican economy. Global trade liberalisation, embodied as the North American Free Trade Agreement (NAFTA) in 1994, has disrupted all sectors of the economy, urban relations and work arrangements. The neoliberal turn toward a downsized state and the promotion of greater global competitiveness has driven Mexico to reduce traditional economic drivers. Global trade and investment patterns tend to privilege capital, especially companies that can move quickly and easily across borders, and to disadvantage labour, especially lower-skilled workers. With the aim of increasing global competitiveness in an export-led industry, increasing numbers of investors are moving to countries like Mexico that have low labour costs (Ricardo & Brissette 2013; PricewaterhouseCoopers 2015). During this period, there has been a radical restructuring of production and distribution in many key industries, characterised by outsourcing or subcontracting through global commodity chains. The net result is that increasing

numbers of workers are being paid very low wages, with many of them having to absorb the non-wage costs of production, such as welfare (Rodrick 1997).

Saskia Sassen argues that, as a result, globalisation is emphasising the development and materialisation of two extremities and creating a division between its societies in many cities around the world. On the one hand, there is the 'mega project of glamour', created by a wealthy component of the population, promoting bubbles of land speculation and high economic profit, and on the other hand, the 'project of marginalisation', in which the entire service sector, or in other words, the strategic working force, lives (Sassen 1994, 1996, 1998). However, Sassen argues that both models are intrinsically interdependent. The expanding growth of services has become more extreme, and at the same time, income inequalities and the need for greater education and technical skills among high-end service workers have bifurcated the labour pool of service providers, with greater informality accompanying the growth in demand for services (Sassen 1991, 1994, 2000). Inequality has not only been exacerbated within urban spaces and territories, but also between urban and rural-indigenous areas, making the contemporary Mexican context even more complex.

Informal globalisation and new emerging spaces of risk and conflict

In many parts of the global South, illicit activities are concentrated not only in certain urban spaces, but also in isolated rural areas working as expanded networks. 'Isolated networks', as Castells defines them, are those parts of remote territories that are used to support the supply of illicit goods, creating new spaces of social conflict at the same time (Castells 2014). Consequently, growth in Mexico today has a lot to do with the paradoxical relationship between global-local economies, formal-informal legal frameworks and urban-rural territories. In many cities and isolated territories of rural Mexico, following a dramatic increase in trade and financial flows between Mexico and its NAFTA partners, a counterpart to globalisation has appeared in the form of informal trends. Organised crime groups operating in urban and rural areas are involved in a variety of illegal activities, ranging from the trade in drugs and military equipment to migrant trafficking from South America to North America, as well as territory control, illegal mineral extraction and wood exports (from indigenous forest territories, discussed below). Additional illegal sources of funding include street markets contraband commerce, extortion and kidnapping, to name only a few (Edgardo 2013; Davis 2012).

Mafias have therefore been able to understand the contemporary dynamics of market-driven liberalisation as an opportunity for their own global trade. By taking advantage of the mega-infrastructures developed by foreign investment (NAFTA corridors and ports) and operating global networks (Mexico–China, Mexico–South America or Mexico–North America), local mafias have developed collateral systems under their own rules and territorial control, which can be

defined as ‘informal globalisation’. These have been the main sources of their financing, and have increased their power in both the state and civil society considerably (Graham 2014; Weinstein 2008).

Diane Davis further explains that these illicit forces often take a role equivalent to mini-states, by monopolising the means of violence and territorial control through imposing paramilitary armies and forced governance on local settlers in exchange for providing ‘protection’. Informal global trade in illicit activities gives the mafias huge income to support their activities. Consequently, they require their own ‘armed forces’ for protection and contract enforcement to operate and control key territories (Davis 2012).

In the Michoacán case, their power has additionally given them access to local political influence and control through interference in ‘democratic’ elections (manipulation of campaigns by finance and fear). As a result, weak municipalities have also ended up as mafia-controlled territories for the expansion of operations, providing a space of impunity, money laundering and the use of public budgets for their benefit. By implication, a huge amount of informal employment is generated through the informal economy and physically situated within this network. According to Davis, the illicit network of reciprocities and the concentration of illegal activities in territories that function as complement domains ‘outside’ of state control further drive the problems of insecurity and violence (Davis 2009). The result is often the development of further clandestine connections between local and municipal police or crime groups and the informal network in order to establish territorial control. During this process, the use of certain rural and isolated territories as additional locations is key to support the illicit activities of informal globalisation.

In the state of Michoacán, after the year 2000, the economy was liberalised and segments of the NAFTA treaty led to increased interest among investors and public officials alike, who pursued foreign investment in mega-projects intended to transform Michoacán into the world’s leading agroindustry exporter (US Department of Agriculture 2012). Through the redevelopment of the rehabilitated Lazaro Cardenas Port (operated by Hutchison Port Holdings Ltd) and multiple motorway and railroad links to the north (operated by Kansas City Southern Rail Network), Michoacán became part of an international NAFTA corridor. As a result, Michoacán has become an international agroindustry-leading exporter, and the Lazaro Cardenas’ Port Terminal is one of the top ten operating ports on the Pacific, serving the east and west coast of North America, South America and Asia (Berth Productivity 2014). Today, this trend continues with the declaration of Lazaro Cardenas Port as a Worldwide Special Economic Zone, meaning that it will be promoted as a geographic area with high productive potential. This will include offering an ‘exceptional business environment’ to attract global investment by the Mexican federal government, promising to generate quality jobs based on incentives, facilities and further infrastructure development (Ley DOF 2016). Such trends are set to continue under the new trade arrangement, USMCA (the United-States, Mexico Canada Agreement).

In the last decade, Michoacán has thus become the national and international leader in fruit and vegetable exports, taking advantage of the favourable weather conditions, extensive arable land, sufficient water and cheap labour. However, even though these changes have led to the development of new economic opportunities, these policies have also had negative parallel effects. Land use practices have suffered high speculation in both urban and rural areas. In rural areas, as agroindustry exports increase, the need for more productive territories to grow fruit and vegetables places pressure on indigenous communities' land (commonly under *ejido* status¹), including forestry, water and other natural ecological reserves. According to recent studies in Mexico's avocado region, 33.1% of forest coverage was lost over a 16-year period. Within this region, two forestry communities lost 7.2% and 15.1% of forest cover respectively, while two adjacent non-forestry communities lost 86.5% and 92.4% respectively. Interview data showed that the Article 27 Reform combined with the 1992 Forestry Law led to a collapse of local governance, contributing to the illegal division of common forests and illegal logging in the two non-forestry communities (Barsimantova & James 2012).

While goods exports and transactions have introduced new economic opportunities in Michoacán, they have paradoxically opened the gateway to new sources of funding to support illicit activities. A new series of illegitimate economies has jumped from simpler drugs contraband to more sophisticated narcotics, and extortion of agroindustry leaders through security taxes added to all their exports. With increased capital, local mafias have been able to acquire more arms, and to legitimise their power, they have invested in the populations where they operate, promoting complicity and protection by the local community. Consequently, as precarity emerges and increases with the population's reduced access to land, local mafias gain a community's support through meeting the needs of food, health or basic services, and thus translate into a high level of legitimacy. This has given them local political influence, and ultimately control of power through municipal appointments. As a result, weak municipalities have ended up as mafia-controlled territories with the expansion of operations for the mafias' benefit.

The historical toleration of informality or illegality, which may have created legitimate gains in the past by stabilising the social, political and economic conditions, has increased the power of local mafias to fight for control over urban and rural territories. After a decade of operation within this framework, and with the incomes enabled through the globalisation of the economy, illicit groups under a degree of toleration and functioning in isolated rural areas of Michoacán have become increasingly powerful. As local mafias have been able to recruit and train young and ex-military unemployed to create their own armies, supported by their imports of illegal weapons, they were able to take control over different key territories for their transactions in both urban and isolated rural areas. Consequently, by 2014 experts suggested that most of the southern area of Michoacán was directly or indirectly under mafia control (Althaus & Dudley 2014a, 2014b).

Along the infrastructural territories of formal global investment, we therefore also find some of the most strategic or isolated territories where local mafias can operate easily. These territories and their infrastructures are part of illicit trade networks, which supply global chains of drugs, guns and other contraband goods, taking advantage of Mexican strategic locations between North and South America and Asia-Pacific trade. This situation not only leads to a physical clash of forces and development models, but to a space where new social conflicts are emerging. According to Diane Davis, this scenario further suggests that states are not only faced with the problem of how to manage and understand their spatial division beyond formal and informal, urban and rural space, but to acknowledge 'safe' and 'unsafe' territories (Davis 2012).

Therefore, a new kind of *risk* is emerging, linked to the impact of macro-economic invisible forces of (formal-informal) globalisation down to the level of the community and individual, materialising as violence and social conflict. These risks, both understanding them and constructing resilient responses to them, demand conceiving of resilience and redefining it through local concerns. *While resilience is often framed specifically as resilience to climate change, the local perspective from Michoacán challenges us on the one hand to acknowledge how responsibility and resilience to local risk not only lies in constructive adaptation to climate change effects, but also in adaptation to larger macro-economic forces and conditions.* On the other hand, it also questions the temptation to transfer indistinctly the environmental crises of responsibility of the global North through conventional resilience ideology to the global South. As a result, in confronting serious problems locally, resistance within Michoacán territories is already establishing a certain form of ability to recover readily from a situation of struggle and social conflict (Shirk et al. 2014).

Resistance: Cherán Michoacán, Mexico – a case of community collective adaptation

In the southern territories of Michoacán, different populations of native indigenous communities settled before the Spanish conquest. Like hundreds of rural communities, villages and regions, the inhabitants of Cherán (an indigenous *pueblo* of about 15,000 inhabitants, the municipal seat and undisputed centre of Purhépecha's culture in the region) have been living with the agony of mafia control. Families and businesses were extorted, attacked, threatened, unprotected by corrupt officials, while the community's (collectively owned) forests were controlled and destroyed by bootleg loggers in collusion with drug traffickers. Mafias use indigenous land to traffic illegal wood from the forest, to synthesise drugs using imported chemicals, and maintain illegal taxes and other sources of illicit revenue to their orchard production. After a failed long-term demand for the government to tackle the mafia's key interests, Cherán's citizens therefore decided to organise themselves. Trucks carrying stolen wood passed through the village daily, yet anyone daring to confront the situation risked their life (Toledo 2015).

Cherán as a key player in the indigenous rights movement in Mexico

Since the beginning of the EZLN² movement in 1995 in the state of Chiapas, the people of Cherán, Michoacán have been key players in the indigenous rights movement in Mexico. They have been active supporters and part of a the National Indigenous Confederation Network, hosting various national indigenous conferences and supporting the rights of indigenous communities. After suffering from violence and extortion from local mafias controlling the southern territories, including those where the entire population is composed of indigenous people, in the early morning of 15 April 2011 the population of Cherán decided to act, leafleting people and calling them to action. Women and young people predominated in the mobilised contingents. Their first act was to detain the timber trucks and apprehend the criminals. They formed self-defence patrols and set up barricades to control who entered and left the village and territories, ignoring the local authorities. A key tactic was building *fogatas* (small traditional bonfires) as points of meeting, surveillance and resistance. On 29 April, traffickers responded by killing two *comuneros* (members of an indigenous community), and a few weeks later, four others *comuneros* were kidnapped (Salazar 2015; Toledo 2015).

From self-defence to self-government

For two months, the community remained isolated but united, developing an unprecedented process of self-organisation, self-defence and, ultimately, self-government. By December 2011, a referendum decided the election without political parties, which were prohibited by agreement of the local population. Authorities were elected directly: A Council of Elders known as El Consejo Mayor was established, with 12 councillors (three for each of the four *barrios*, or neighbourhoods) by invoking their constitutional right to self-government as an indigenous *pueblo*. For the first time, the concept of establishing self-defence groups was implemented in the state of Michoacán, taking advantage of the strong local social cohesion of the indigenous tradition.

As part of the strategy, Cherán's leaders went further, developing a case in the Supreme Court of Justice of Mexico in which the population declared the Consejo Mayor de Cherán – elected by Habits and Traditions – as the only authority of the population. As part of the defence tribunal's main argument to take power and control of the municipality, it was demonstrated that the mafias had infiltrated and corrupted the local municipal police and government. The first tactical step, according to an autonomy declaration on April 2011, was to centre territorial control on the municipal building to substitute for government functions. During this process, the people were supported by Colectivo Emancipaciones, a non-profit organisation including historians and lawyers from Universidad Michoacana de San Nicolás de Hidalgo, based in Morelia, Michoacán, with the aim of supporting significant situations and

liberal studies. Colectivo Emancipaciones played a key role in leading the defence process under the constitutional rights claim of native indigenous communities for self-determination (Emancipaciones 2014). As a result, in May 2014 the Supreme Court of Justice declared the community of Cherán the first autonomous municipality of Mexico, which recognises democratic methods based on the local indigenous tradition. Today, El Consejo Mayor de Cherán is recognised as the sole municipal government with all rights to execute, develop and apply the rule of law and all its implications. This progressive step has been a milestone not only in laying the foundations of a new governability framework to support Cherán's capacity to recover readily from the struggle of social conflict in the region after suffering from local mafias suppression, but also to give its people the basic tools to develop a future vision based on self-determination (Aragon 2012, 2013, 2015).

After achieving power, the community have been following their traditional ways of organisation based on resource efficiency, sharing of key decisions and resources, and rotation of power. Consequently, a key feature is that most of the members of El Consejo Mayor have also kept their main productive activities at the same time. They have other forestry and agricultural jobs besides being part in the government; they are not full-time politicians. The members of El Consejo consider their participation as an honorary, unwaged appointment, allowing the redirection of all municipal budgets to productive activities.

As a result, in a very short period of time this process, supported by social organisations and national and international foundations (especially centres of education and scientific and technology research), has been decisive. In the last five years, they have carried out more than 40 research projects, including studies of forest management, communication, culture, education, land use planning and health. Their most evident achievements are the Community Patrols, undertaken by some 100 people, who have promoted the gradual recovery of their forests through monitoring and innovative management techniques such as Radio Fogata (101.7 FM), operated by the community's young people. In the Communal Forest Nursery, the tasks of gathering, germinating and managing the seeds of pine, oak, arbutus (strawberry tree), fir, chokecherry and other species are performed. Using agro-ecological methods, including an advanced robotic irrigation system, the nursery produces 1.5 million plants a year, providing more than 30 permanent and more than 100 seasonal jobs. In political terms, Cherán has hosted numerous events, most notably a meeting of the National Assembly of the Environmentally Affected, a session of the Permanent Peoples' Tribunal and a congress of some 100 communities in September 2014 (Salazar 2015; Toledo 2015).

While much has been achieved, the ability to recover from struggle by rebuilding a lifestyle based on a communal government and on 'uses and customs' brings difficulties. Specifically, they face a broad list of systematic challenges, such as administrative bureaucracy, political parties, organised crime and state resistance to recognise the indigenous community's rights. However,

Cherán's citizens are continuing their movement and are committed to keep developing a renovated future 'for justice, security and the reconstitution of its territory' (Ventura Patiño 2012).

Conclusion

Following the seminal book *Growing Up Global* by Cindi Katz (2004), who proposes that in order to understand the contemporary impact of the global capital, with its attenuated processes of uneven development, environmental degradation and labour exploitation, it is necessary to turn our attention to the ordinary realm of the everyday. In this case, it is within Michoacán local communities where it becomes possible to see the creative ways that people engage and defy the persistent exigencies of the isolated networks accompanying the formal impacts of globalisation.

In the face of a globalisation system that is based in resource extraction and speculation, involving corporations, banks, governments, political parties, the army/police, judicial authorities and so on, it becomes essential to acknowledge the models of ecological regeneration and socio-cultural restoration as they are being practised, and particularly so as an alternative in confronting contemporary environmental risks. *Cherán's community resistance shows us a bottom-up case led by citizens who have turned to unconventional models of sustainability and resilience that are redefined by local concerns.* In Michoacán, this process of *resistance* to, and recovery from, struggle and social conflict is achieved through citizen awakening and militant organisation in equitable and ecologically sensitive ways. As such, it is an inspiring example to consider. Their experience is, of course, limited, yet it has the virtue of having carried out local alternative initiatives that can demonstrate to other areas of the country the possibilities of escaping the current risks. In this sense, their achievement is not minor. As the Mexican ethno-ecologist Victor M. Toledo suggests: 'the people of Cherán have gotten underway a maxim that today is crucial: the crisis of civilization is overcome only by carrying out civilizational transformations' (Toledo 2015). Cherán has carried out radical actions for a qualitative transformation, and its population has managed to move from resistance and protest to collectively establish the foundations of alternative vision of resilience.

Acknowledgements

Remarkable thanks are due to Rahul Mehrotra for his kind mentorship and support and for creating the opportunity for my stay at Harvard Graduate School of Design. Special thanks are due Diane Davis for her many comments and suggestions on the conception of this chapter. Many ideas and reflections took place during discussions at the Graduate School of Design as part of my Visiting Fellowship. Also, thanks to Kate Cahill for her ultimate observations. Last but not least, thanks to Kim Trogal for her input editing this chapter.

This research has been developed as part of the Unit of Territorial Intelligence of the Master of Advanced Design programme at the Faculty of Architecture of the Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Mexico, and has been possible thanks to the economic support of CONACYT (Mexican Council of Science and Technology), the Harvard Foundation for Mexicans and the Department of Urban Design of Harvard Graduate School of Design.

Notes

- 1 In the Mexican system of government, an *ejido* (from latin *exitum*) is an area of communal land used for agriculture where community members individually possess and farm a specific parcel. *Ejid*os are registered with Mexico's National Agrarian Registry (Registro Agrario Nacional). The system of *ejidos* was based on an understanding of the Aztec *calpulli* and the medieval Spanish *ejido*.
- 2 Ejército Zapatista de Liberación Nacional, the Zapatista Army of National Liberation.

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19

LEARNING FROM NEW ORLEANS

Social resilience for urban ecosystems

Marcella Del Signore and Cordula Roser Gray

Introduction

The scale of recovery equivalent to the task at hand in New Orleans and the Gulf Coast is beginning to be witnessed elsewhere across the globe. The magnitude and number of recent storms in conjunction with rapid land loss along the Gulf Coast have demanded development proposals that simultaneously address needs and opportunities for social, ecological and economic innovation. Many objectives are at stake, such as community vitality, infrastructural integrity, flood control, sustainable coastal ecosystems, and commercial and recreational activities.

This chapter introduces New Orleans since Katrina in 2005, and explores the definitions of social resilience that are needed in this post-disaster context. It then goes on to introduce a range of architectural responses at varying scales. These have been designed in conjunction with multiple stakeholders, not only to increase the likelihood of successful implementation, but to facilitate the development of policies and funding mechanisms that build social resilience. The projects documented here investigate the contextual relationship between community, water and infrastructure, connecting community-based and non-profit organisations, private-public investment, government agencies and academia in order to reduce vulnerability through knowledge-sharing, community-driven idea development and policy advocacy.

New Orleans, post-Katrina

In the field of urban studies and urban ecologies, studies of post-disaster recovery have increasingly focused on 'adaptive capacity', 'self-organisation', 'diversity', 'transformability' and 'resilience' as main factors that explain the variation in pace and trajectory of rebuilding (Dietz, Ostrom, & Stern 2003; Grimm & Redman

2004). In this conception, recovery rates vary according to the degree to which the system can build and increase the capacity for learning, self-organisation, renewal and innovation when faced with disturbances (Adger et al. 2005; Berkes, Colding, & Folke 2003). Since 2005, New Orleans has become a fertile testing ground for ideas and scenarios for the effective use of political, economic, cultural and natural resources for recovery, transformation and innovation (Campanella & Gotham 2013).

Declared one of the worst natural disasters in American history, Katrina has completely reshaped the image of the city and its forms of use and inhabitation. With billions of dollars of property damage, the displacement of the vast majority of the population and the dramatic change of the natural equilibrium, the city has faced the challenge of dealing with the constant reinterpretation of what the notion of context may be. Nowadays, this is still a precarious parameter, influencing attempts to establish clear actions for recovery and resilience. Over the years, a number of urban strategies have been set in place dealing both with the contextual macro-region and the smaller neighbourhood scale. However, future visions for the city continue to be compromised by the need for immediate reconstruction efforts to be economically viable. The fragmented and discontinuous context demonstrates the need for a holistic approach and a comprehensive urban strategy. In some instances, the merging of top-down and bottom-up approaches has allowed the context to be re-stitched as an integral whole; in other cases, this process is still in progress. It is a difficult task to provide an overarching image of what New Orleans is ten years after the storm, but the devastation has slowly revealed opportunities for change.

Katrina quickly revealed the long-term and underlying inequality often veiled by the more familiar stereotypes of the city itself. The post-disaster social landscape that emerged months after the storm revealed the contours of visceral racism – residential, occupational and environmental – the costs of enduring social and environmental injustice, the neglect of crucial infrastructure, including New Orleans's intricate water management system, and the evisceration of public support for housing, healthcare, education and social welfare (Katz 2008). A large proportion of the population has still not returned, and it is almost impossible to discuss this topic without thinking about issues of race, class and the large socio-political forces at play. The underlying dynamic that has kept the city in steady decline for 50 years is a 'social trap' – the inability of government, business and civic leaders to negotiate with integrity across racial, religious and class lines to bring into being a city that works better and more equitably for all groups.

On the other hand, as the city had battled for decades to shape and control actions along lines defined by race, neighbourhood, income and other factors of difference (Reese 2014), the overall rebuilding process has turned into a larger platform where discussions over contextual responses have been only one of the many parameters requiring consideration. The dynamics of the social ecosystem and the transformations taking place alongside the political arena have led to the

development of an intricate system of responses pointing towards a vision for a resilient urban future. Ten years after the storm, the social ecosystem of the city has changed and still continues to change. As young urban professionals from different disciplines took leave from their jobs and headed south to contribute to the rebuilding effort, a second wave of young job seekers began arriving, enticed by the relatively robust new economy compared to the rest of the country (Campanella & Gotham 2013). Together, these newcomers, more specialised and skilled, managed to establish new emergent economies throughout the city and the region. These considerations make the current social ecosystem heterogeneous yet difficult to portray as it evolves to adapt and self-organise. At the same time, new forces have been growing in the city as ‘agents’ for change.

Since 2005, a new category of entrepreneurs – creative types, advocates and others – have found their way into the urban fabric, establishing non-profit organisations, social entrepreneurship programmes, community organisations and more. These new bottom-up forces, in the form of agents, have produced a solid ground for a series of renewal processes driven directly from the citizens and for the citizens. They have propelled innovative forms of organisation that have contributed substantially to urban transformation by starting new programmes entailing both the physical transformation of ‘places’ as well as the social-ecological systems around them. This evolving social ecosystem continues to generate an array of diversified categories of people that act as agents for the construction of new communities. For instance, some of the people who came to New Orleans only for the rebuilding process have decided to remain and make the city their home; others, including long-term residents, who also helped in the rebuilding process, have created new social ventures and established platforms to tackle pressing urban issues. In this sense, the city is re-imagined collectively, and all the efforts and challenges as well as the benefits are shared. The projected success of such future urban space will be shaped by its physical layers as well as the cultural, social, economic and political forces surrounding it. The series of case studies presented here have been chosen as prototypical interventions that have acted as catalysts for social resilience in the city of New Orleans, demonstrating the importance of an understanding of context, social ecosystems and agents to a successful architectural response.

Defining social resilience in post-disaster New Orleans

Within the context of increasing climate-related disasters, the existing social, political, economic and cultural inequalities and instabilities on the ground greatly increase the risk of ‘natural’ and other disasters, yet at the same time offer a potential opportunity to remedy those conditions through local risk-prevention strategies at a variety of scales (Tierney 2014). Social resilience is often defined as the ‘capacity to reorganise resources and action to respond to actual danger, after it occurs’ (Wildavsky 1988), or as the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and

environmental change (Adger 2000). In her book *The Shock Doctrine*, Naomi Klein (2007) claims that collective massive shocks such as wars, terrorist attack or natural disasters have often provided a context for the exploitation of disaster-shocked communities. Klein supports her argument by providing examples of how certain groups and corporations have flourished from post-disaster conditions through the imposition of economic control, with a consequent exploitation of resources at all levels. In particular, she argues that:

By the time that Hurricane Katrina hit New Orleans and the nexus of Republican politicians, think tanks and land developers started talking about “clean sheets” and exciting opportunities, it was clear that this would now be the preferred method of advancing corporate goals: using moments of collective trauma to engage in radical social and economic engineering.

(Klein 2007, p. 8)

However, in this chapter we suggest that disasters could potentially offer more positive catalysts for recovery, using the principles of adaptation and re-grounding based on pre-existing cultural and social codes. Pre-disaster, strong social connections and infrastructures provide the elasticity for communities not only to survive, but to ultimately thrive and regain their vitality after a disturbance. In Katrina’s aftermath, the continuous tension between top-down controlled actions and bottom-up local responses in some instances brought local community-based efforts to counterbalance more economically driven solutions. In this framework, opportunities to redefine resilience through the lens of social production and reproduction arose within the post-Katrina context.

The famous geographer Cindi Katz in her work on New Orleans argues that:

Underneath all the physical wreckage and debris, what Katrina and the flood in its wake scoured was the desperately uneven landscape of social reproduction in New Orleans, it revealed the costs of long term disinvestments in the social wage, the toll of ‘hostile privatism’, the patterns of enduring racial segregation, and the peculiar geographies of states rights, cronyism, and the militarized security state all jumbled together.

(2008, p. 16)

By ‘social reproduction’, Katz is referring to feminist critiques and understandings of the economy, recognising all the broad everyday life practices involved in sustaining our world. These are the very practices of social resilience. However, in spite of this uneven landscape, Katz continues, suggesting that:

the events as crisis have provoked an opportunity to remake the material social practices of everyday life in ways that alter our collective expectations

of ourselves and the social forms and institutions through which we both make our lives and make them sensible.

(2008, p. 18)

If we understand resilience as connections between people and places, these connections can be built through a variety of systems and across a range of scales, both physical and temporal. Strategies can be large or small, perpetual or temporary, spontaneous or intentional. In this context, Obrist, Pfeiffer, & Henley (2010, p. 289) define social resilience as:

the capacity of actors to access capitals in order to – not only cope with and adjust to adverse conditions (that is, reactive capacity) – but also search for and create options (that is, proactive capacity) and thus develop increased competence (that is, positive outcomes) in dealing with a threat.

Socio-environmental resilience can be conceived and practised at a variety of scales and configurations – ranging outward from individuals to households, communities, neighbourhoods, firms, civil society institutions, governance structures and infrastructure networks, as well as to supra-urban forces of sub-national regional hinterlands, and even to multinational regions (Vale 2014). By setting a framework for people to meet, share and connect, the otherwise invisible and often intangible connections among a community can be supported. The concept of ‘shared space’, the inherent attachment to place and culture that ultimately allows for the allocation of common resources and knowledge between individuals and across communities, demonstrates the strength of collective identity to support resilience. Post-Katrina New Orleans has been a testing ground for a set of multi-scalar strategies that have engaged a variety of responses, both at the social level as well as the political, economic and environmental levels.

Architectural responses to support social resilience

A new commitment to equally value partner expertise – strengthening ground-up resilience and adaptive capacity while informing and shaping policy – has resulted in collaborations to increase resilience at the community, state and regional scale post-Katrina. The need for regional remediation in conjunction with the urgent need to find workable solutions has led to the development of numerous architectural responses at different scales. In conjunction with the idea of constructing social resilience through shared space, three individual case studies are presented here, based on three categories that link time with scale (spontaneous/micro, aggregative/medium and perpetual/macro), measuring specific aspects of resilience through implementation strategies within different social and cultural settings. They investigate contextual relationships to water, issues of preservation and progress, and urban void space and blight, utilising the power

of collective memory and existing community structures to implement successful community rebuilding through the lens of social resiliency. Located in under-privileged areas of the city, these case studies exemplify how stakeholder input at the individual and small-group level, if orchestrated correctly, can lead to the revitalisation of neighbourhoods and the (re)activation of communities.

1. HGM&F – accessible multi-scalar food production (spontaneous/micro)

The collapse of governmental agencies offering effective response systems, especially following the evacuation of poor neighbourhoods following Katrina, clearly revealed a lack of equality and empathy at a municipal level. This ‘gaping room for action’ (Katz 2008) can only be addressed with the help of local agents and their long-term commitment to organisational capacity-building, rather than top-down policies.

Located in a neighbourhood badly damaged by Hurricane Katrina, the Hollygrove Market and Farm (HGM&F)¹ demonstrates community food engagement in an area of the city long abandoned by full-service food retailers (Figures 19.1 and 19.2). Prior to Katrina, the contextual conditions of Hollygrove closely resembled many others in New Orleans, marred by social injustice, segregation and complete lack of, and accessibility to, resources. The mismanagement of infrastructural resources, combined with a lack of support for public amenities such as housing and education, had created a destabilising scenario of abandonment and neglect. As Katz described: ‘the storm [then] struck a historical

FIGURE 19.1 Hollygrove Market and Farm – main entrance area.

Source: Marcella Del Signore and Cordula Roser Gray

FIGURE 19.2 Hollygrove Market and Farm.

Source: Marcella Del Signore and Cordula Roser Gray

geography reeling from the effects of devolution, privatisation, military neoliberalism and state rights in a notorious state' (2008). Post-Katrina, the Hollygrove Market and Farm programme and its proposed site offered a unique opportunity to seize upon nascent efforts of community rebuilding and collective utilisation of resources in order to establish community vitality, infrastructural integrity and habitable urban landscapes. Improving food production and accessibility to healthy food in a damaged and discontinuous context are helping to resurrect basic urban life qualities. As part of its programme, HGM&F offers small gardening plots that are managed by members of the immediate community aspiring to learn about growing produce and providing for their families, either through direct consumption or sale of their goods at the adjacent market. Rawls argues that no political or social framework can achieve social justice if it tries to divide control over productive resources between economic classes (Fainstein 2006; Rawls 1971, 2001). Access to healthy food production at the local scale in conjunction with temporary property ownership can stimulate responsible thinking, leading to economic vitality and equality at the neighbourhood scale. Furthermore, extending productive green spaces throughout the city through the rehabilitation of blighted and vacant urban space can provide important community anchors, offering spaces for gathering and communal/cultural events, and creating legible visible nodes throughout the city while initiating community rehabilitation and social resilience.

At the Hollygrove site, a small pavilion designed and built by Tulane University students celebrates shared collective space through the facilitation of knowledge exchange among community members while celebrating sustainable systems and site water management. The pavilion forms a gateway into the site, announcing an opportunity to strengthen social frameworks through the everyday practices of production and consumption. The demonstration of small-scale remediation strategies such as soil bioremediation, filtration of toxic urban run-off and the fostering of local ecologies not only offers opportunities to educate a deprived and disassociated community, but to create an environment defined by 'socio-environmental resilience' (Vale 2014), proposing and anticipating action at the local scale.

2. JPNSI – re-compacted urban form (aggregative/medium)

Among the most significant threats to communities are broken physical and social networks, often caused by devastating cataclysmic events (Aldrich & Meyer 2015). Post-disaster, uneven distribution of recovery funds based on false equivalencies, increased housing costs and lack of affordable housing options can expose residents, especially renters, to financial stress, leading to fragmented communities. Building on the concept of 'shared space', community engagement and strong social ties can lead to successful economic development, the formation of social capital, and the distribution of information and community competence as a form of resilience (Sherrieb, Norris, & Galea 2010, p. 228).

In a city like New Orleans, where blight and decay in connection with ineffectual local governance have been constants in the urban realm even before 2005, densification of the built environment can be considered as a means to build up social resilience (Berke & Campanella 2006).

The Jane Place Neighborhood Sustainability Initiative (JPNSI)² was founded as a non-profit housing and community development organisation committed to creating sustainable, democratic and economically balanced neighbourhoods and communities, utilising the community land trust model to install responsible land stewardship and shared equity (Figures 19.3 and 19.4). JPNSI works to ensure

FIGURE 19.3 Jane Place Neighborhood Sustainability Initiative.

Source: Marcella Del Signore and Cordula Roser Gray

FIGURE 19.4 Jane Place Neighborhood Sustainability Initiative.
Source: Marcella Del Signore and Cordula Roser Gray

and enable everybody's right to affordable, safe housing void of discrimination and inequality and based on community-driven initiatives.

At Jane Place, four affordable housing units were included in a newly renovated building located close to recent commercial development in a challenged neighbourhood of the city, devastated by Hurricane Katrina. The project was funded by a combination of a small grant from a community land trust, historic tax credits and a partnership with a local community development group, with the intent to foster a collective identity and people-place relationships. 'Shared space' here functions as a means to promote connectivity between non-profit agents and community beneficiaries, building sustained community resilience, with a focus on long-term stakeholder community-building. Communal space incorporated into the ground floor of the building allows for a physical manifestation of the idea of shared space, merging the streetscape and communal sidewalk with new collaborative environments.

3. Coded Space – urban void strategies (perpetual/macro)

Coded Space³ investigates the application of a repetitive spatial code (with plasticity, reciprocity and redundancy at its core) to address the revitalisation of void spaces created by the construction of the Pontchartrain Expressway that negatively affected the communities surrounding it. Using a multi-scalar framework to connect macro and micro components, the code allows for the systematic implementation of a multiplicity of programmes loosely divided into connections, spaces of exchange, recreation and productive infrastructure (Figures 19.5 and 19.6). At the macro level, a cohesive system of programmable plots and connective tissue generates a sequence of repetitive elements that can be altered or combined – depending on location – to ensure spatial continuity and to maximise the potential use for the surrounding community. In conjunction with the macro, a malleable micro scale is identified through a combination of three

FIGURE 19.5 Coded Space – spatial and programmatic elements.

Source: Marcella Del Signore and Cordula Roser Gray

FIGURE 19.6 Coded Space.

Source: Marcella Del Signore and Cordula Roser Gray

categories – surfaces (ground), poles (verticals) and canopy (ceiling) – that function as flexible elements, able to absorb as well as adapt to external forces applied by site, context and user.

Generally, seamless connections to the surrounding neighbourhoods are as important as the development of a dynamic environment, with the ultimate goal of encouraging community empowerment and revitalisation. Interaction of the residents with the new public shared space, ranging in scale from small community garden plots to large recreational areas and connective pathways, significantly enhances the existing public realm, fostering civic engagement through community groups and promoting investment through local agents.

This new public space typology, designed to simultaneously act as community asset and productive infrastructure, balances prescribed systems and unpredictable user- and context-determined variables through adaptive response mechanisms implanted into the urban context post-disaster, connecting a fragmented context with local forms of power.

Conclusions

Many lessons can be learned from Hurricane Katrina's aftermath if they are underpinned by a deeper understanding of ecological, communal and other regional networks to which such communities are irrevocably linked. It is important to emphasise the interdependent nature of complex, coupled human–natural systems and the challenge ahead for designers as they envision futures in these changing socio-demographic, economic and environmental conditions.

It is evident from past mistakes that the future viability of coastal communities is contingent on an adaptive urban realm. Success lies in the ability to provide reconfigured infrastructural systems and habitable urban landscapes that embrace processes taking on coordinated strategies of resiliency and connectivity. Design at every scale has to take into consideration an unpredictable and fluid context. Policy and governance have to adapt in equal measure to the environmental, economic and social needs of a community. And the community has to genuinely participate in this process.

Through the lessons learned from New Orleans and its post-disaster urban renewal process, architectural responses can become a force for establishing integrated strategies for resilience, taking into account context, social ecosystems and agents as parameters. As stated: 'In resilient systems, networks are interdependent, heterogeneous, collaborative, and functionally redundant, with reserve capacity achieved through duplication, inter-changeability, and cross-scale inter-connections' (Campanella & Gotham 2011; Godschalk 2003).

As designers, we have the opportunity to capitalise on pre-existing human resources, social capital and civic infrastructure to create physical, publicly accessible space in order to connect community members with their surroundings, avoiding disruption and displacement. Success lies in the capacity to generate

scenarios that develop a capacity for communal learning and self-organisation, and through this renewal process, to find a connection between micro and macro urban dynamics, building up inter-scalar social resilience.

Notes

- 1 Architectural design for the Hollygrove Market and Farm in collaboration with the Carrollton-Hollygrove Community Development Corporation, New Orleans Food and Farm Network, Tulane City Center and Tulane School of Architecture students, with support from the Surdna Foundation. Design team: Cordula Roser Gray, Seth Welty, John Nelson, Guan Wang.
- 2 Architectural design and design research for permanently affordable housing in MidCity through a community land trust in collaboration with the Jane Place Neighborhood Sustainability Initiative, Tulane City Center, Tulane Master of Sustainable Real Estate Development programme and Tulane School of Architecture students, with support from Johnson Controls Incorporated and the Surdna Foundation. Design team: Casius Pealer, Cordula Roser Gray, John Nelson, Evan Amato, Brian Sully, Andrew Mayronne.
- 3 Master planning for the infrastructural implementation of the Pontchartrain Expressway sponsored by NOMA, New Orleans. Design team: Marcella Del Signore, Cordula Roser Gray, Guiseppe Morando, Jonathan Sharp.

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20

FROM CITY POLICY TO THE NEIGHBOURHOOD

An interview with Tina Saaby

Tina Saaby with Irena Bauman

Tina Saaby is the City Architect for Copenhagen and for the last eight years has been developing strategies to make the public life in the city more vibrant, sustainable and resilient in the face of climate change. Here, she discusses the impacts of those strategies and the relationship between centralised planning and the neighbourhood, the expert and the citizens.

IRENA BAUMAN (IB): Can you tell us about the Urban Life strategy in Copenhagen? What it can tell us about city-scale policies and how they can be enacted and connected to the neighbourhood scale?

TINA SAABY (TS): The key vision in our first Urban Life strategy from 2009 was to try to turn around the focus of spatial planning so that we start by discussing city life and the three goals that ensure the quality of outdoor life: more urban life for all, more people walking and cycling, and more diversity in outdoor spaces. Today, that is more or less implemented as a common culture.

IB: As a top-down policy, how was it implemented at neighbourhood level? Was there any participation in formulating this from the neighbourhoods and the people of Copenhagen?

TS: Yes, it was a top-down strategy. It was inaugurated by the former mayor, Klaus Bondam, who was the mayor of the technical and environmental department, going back to 2009. Then it was adopted by the different mayors that followed. The city municipality implements the policy. The strategy was developed together with Jan Gehl Architects. It was based on all the data that we had been collecting in Copenhagen about the bicycles and city life in general, and it began with meetings for the public at the Town Hall.

IB: From the direct experience I have of community-led place design, I have fundamental reservations about whether bottom-up initiatives are more effective than well-informed top-down initiatives. Some of

the demonstrator neighbourhoods that aim to achieve real sustainability, such as Kronsberg in Hanover and Hammerby in Stockholm, were developed as a top-down initiative. But they are not very resilient. I think that the best way is ‘clapping hands’: a combination of top-down and bottom-up. But that’s very difficult to achieve also.

TS: I’ve been thinking a lot about that as well. When we were formulating the new architecture policy, we chose to have very different conversations with a lot of people who knew something about the city from different perspectives, but not so much with the whole community itself. I can see that when we go to the neighbourhood level, the direct engagement with citizens gives us information we do not have centrally. The engagement starts to make sense in a new way, where the vision from the strategy and the local knowledge from the site merge together and create a special place-making that is also connected with the overall city. I think that is a way to actually show that balance between the clapping hands: the top-down and the bottom-up. The strategy is not a site-specific plan; it is, in a way, a guideline that most people can see their place in. It is difficult to go out and ask people ‘What is the vision for the city?’ because it could be everything! But when you ask people more specific questions about their everyday life in their own neighbourhood, you can get a lot more engagement in the development, as well as a lot of ‘hidden’ information that can be so important for place-making.

IB: Is this focus on liveability working? Can you see how it is applied in different places?

TS: Yes. I really think that we can start to see some of the focus points very precisely in the new urban development areas. If you go to the Nordhavn (North Harbour) or some of the other new areas, you can see that it is working. There was life between the buildings at Nordhavn from day one. And you can see this when you look around the city in general.

IB: And do you think that this approach is resilient? Will it become the norm, or do you have to fight for it all the time?

TS: It becomes the norm more and more, but there is of course still a lot of fighting. When I talk with the developers and investors, they can see it makes sense and that it is good for making money. That is economic resilience: they can see it as a good investment. They can now sell an apartment at ground floor level, for example, which they could not have done before, because they are now making good apartments that people want to live in.

IB: What challenges are you experiencing equating social ambitions with economic benefits?

TS: One of the biggest challenges right now is that more and more people are living in the city. Everybody loves city life, but ‘not so much in my backyard’ – they get irritated that people other than themselves are using it. So one of the issues in the strategy is to try to give public access everywhere, and that is under pressure.

IB: What can people do? Are people trying to gate certain areas? Do you have policies in place to stop that from happening?

TS: Yes, they are. We have a policy saying that we want to keep space public. We have site-specific plans, and local plans saying that fencing off areas is not allowed. In some areas, if there is no local plan or if they own the land, it can be difficult to say that they must make space public. It is also difficult when it is used by the public and the people must maintain it themselves. It is a conflicting issue.

IB: Is there is no financial assistance on offer from the city?

TS: No. I think it could be interesting to see if we could get some volunteers who could help in special situations. We've been talking about whether we could do more experiments like that.

IB: That would be an example of civic economy or civic strategy: a civic contribution to the city. Buy-in by the community could make a big impact. But where the state is still very strong, people might say: 'Well, we have elected you, we have paid our taxes, so it is for you to maintain these spaces if you want them to be public.'

TS: Yes. If we ask people to do it, they would probably say no.

IB: In Freiburg, a new neighbourhood of Rieselfeld, residents were asked to maintain areas around trees. They ended up having a competition for the most beautiful street, so the residents were happy to plant and maintain flowers.

TS: Yes, we have similar projects in specific local urban spaces.

IB: You have mentioned some successful measures, such as economic benefits. How do you measure success?

TS: The way the administration follows up on our goals for city life is by keeping 'city life accounts'. We review these every year, and then we report to the politicians if we succeed or not. The first city life strategy ended in 2015 (it was a strategy for 2009–2015), and in this respect we did achieve the goals that we set out. In that sense, you could say we did well. We also gained a lot of knowledge about the diversity of the use of public space by men and women; we focused on movement in urban space; we asked people about urban nature and got a lot of insight about how people want more nature in the city. The new strategy is built on a lot of the knowledge that we collected through the city life accounts.

IB: What is the next strategy that is being developed?

TS: It is called Co-Creation Copenhagen.

IB: Did it feel like there was enough time to embed the new strategy into the way things are done?

TS: We achieved our goals, so you could say that we had to have a new strategy. The new strategy was an opportunity to look at the goals we wanted to continue to pursue as well as new goals. The goal about getting people to stay outside longer is also a goal in the new strategy. Now we are aiming for people to stay outside 20% more between 2015 and 2025, when the Co-Creation

strategy ends. The focus on urban nature, a new goal, came from knowledge we gained from citizens about a desire for more nature in the city. So I think the new strategy is building on the changes that have occurred over the six years of the previous strategy.

IB: Can you tell us about the 2012 Cloudburst Strategy?

TS: We began with what to do about climate change in general – the first strategy for climate change focused on rainwater, rising sea levels and rising temperatures. Then, on 2 July 2011, we had a big storm, and because of that the politicians asked the administration to speed up development of a strategy for heavy rain. Very soon afterwards, we developed a strategy focused on the vision that we want to take care of the heavy rain by giving something back to the city. As far as we can, we should take care of the rainwater above ground instead of putting it under the ground as invisible infrastructure (see Figure 20.1).

In the strategy, we focused on different ways of taking care of the water: some roads should take the water to the sea directly; some roads should save the water, delaying release to the sea; and we should collect the water in other places. The idea was to try as far as we could to take the water to green areas where it could be utilised. We produced a masterplan with seven site-specific plans for seven areas of Copenhagen, each analysing, observing and understanding specific issues at the local level. On top of those plans, we proposed 300 projects from 2012 to 2032. Every year, a package of projects will be

FIGURE 20.1 Cloudburst infrastructure.

Photo: Irena Bauman

shown to politicians, and they have to find out how much money will be put into each project.

IB: Is there also collaboration with the private sector?

TS: Yes, there are collaborations with a lot of private firms and with the utility company HOFOR. In each project that we are developing, there will be money from HOFOR and from the city.

In a way, you could also say that from now on it is also a collaboration with citizens. As a citizen, you pay money to take care of your rainwater. So, if you can collect your own rainwater separately from the central system, you can save some money.

IB: So there is a mechanism in place to encourage people to take decisions, but no mechanism for engagement in the making of the strategy?

TS: You could say that when water goes down into everybody's cellars, there is a problem which the people ask the politicians to take care of. The consequences of the 2011 storm were felt by a lot of people – however, not all. There is a very interesting pattern that we have learnt as we begin to implement these projects in different neighbourhoods. There is a challenge in asking people to put up with the inconvenience of construction projects. If you have not had problems with rain, you focus on other problems such as paying the rent and things like that. You forget the problems with rain.

Another challenge right now is that it is difficult to explain why we need to rearrange the green parks – already some of the best urban spaces in the city – in order to collect all the water. Why will we need to cut down some of the trees? To make enough space for the water. Explaining local projects and gaining local understanding is challenging.

IB: Can people object?

TS: You cannot stop the development. The problem is, if the project is to take care of the rainwater, we risk making some of the urban spaces not as good as they are today. We need to have money for more than simply collecting the water, otherwise we will damage our parks and our urban spaces. Bringing extra qualities into urban spaces requires money, and that discussion can be difficult, both for politicians to understand and for citizens. It also means that as the administration, we have to look at the whole complexity of the city, because climate change will determine how the city changes over the next 10 to 20 years. We therefore have to understand the whole infrastructure of cycling, urban spaces, maintenance; we have to understand the whole complexity of it all upfront to make it work together with dealing with climate change. And that is very complicated – I think it is a lot more complicated than we thought at the beginning.

IB: Could you have done something different to make it easier?

TS: Yes and no. We could have asked more questions from the beginning before we commissioned the 300 projects – 300 projects were commissioned with the goal of addressing water alone. Had we known more at that time, the 300

projects might have been a little bit different from what they are today. Again, I think if we are clever and if we can have the flexibility in our organisation and our understanding of the 300 projects, we can develop a more holistic approach. But it really needs a lot of dialogue, especially with all the experts in all the different fields in our planning systems.

IB: Is there a platform for collaborative discussions with all the experts on a regular basis?

TS: We are trying to develop one. It is not easy, because to understand the water system, the technical issues, cleaning the water etc., is very complex. Everybody has to understand that they have to put their expert knowledge into the Cloudburst plan, and at the same time every expert has to have a little bit of knowledge of the water system as a whole in order to contribute.

IB: Are there any new types of collaborations to deal with these complex spatial issues – for example, are water engineers working with sociologists or environmental psychologists?

TS: Yes, a lot of landscape architects and firms are now starting to engage more with this problem. The water experts are getting better and better at understanding these water issues, and every landscape architect working in Copenhagen now knows a lot about how to take care of rainwater! Some firms are starting to develop new projects: Third Nature is developing a concrete pavement that rainwater can go through and be collected on the other side. There are a lot of small entrepreneurs that, for instance, are starting to do urban gardening in different ways.

IB: So how resilient do you think the strategy is? What would stop it from being implemented?

TS: So far, not many of the 300 projects have been realised, but more have been approved, and they are not confined by a time limit. I think it could only be stopped from being implemented at the level of municipal and national politics; but so far they have committed to it, so hopefully it will not be something that totally changes direction.

The challenge is rather maintaining and increasing the quality of urban space; how much will we invest, and how can we overcome the complexity in solving all of the problems in the city? The strategy is resilient in having a very clear goal that the water should give something back to the city, the site-specific plans are very strong because they contain a lot of knowledge about local specificities. In that way, it is quite resilient. But I think the biggest obstacle to resilience is the complexity. When we receive new local knowledge and we have to change something in one of the 300 projects (e.g. if some take less rainwater, or if some have to be moved a little because of the requirements of that site), we then have to go back to the original plan to see the consequences in terms of where the rainwater is coming and going, and reconsider the design of the infrastructure as a whole, and understand the consequences for the other projects and for urban spaces. In that sense, it is very complicated. And because it is so complex, and because it takes so many years,

and because a lot depends on the knowledge of individuals with all their understandings of the process and memories of what has been done to date, I think that is in a way the weakness. It takes quite a long time, and every time we change just a little bit, it has a consequence for another part of the project. The complexity and expertise required is very difficult to explain both to myself and to all the rest of the people who are not expert in the issues of rainwater.

IB: Did the Urban Nature Strategy follow the Cloudburst Strategy?

TS: The Urban Nature Strategy was developed in parallel to Co-Create Copenhagen based on our knowledge and experiences from Urban Life, which showed that during the last five years, while people were satisfied with the urban life in the city, they wanted to have more nature in the city. In Co-Create Copenhagen, there is a goal that 75% of all Copenhageners should experience Copenhagen as a green city in 2025. In the strategy for Urban Nature, there are two visions: one is for more nature, the second is for a better quality of urban nature. There are different goals in these visions of more and better: concerned with biodiversity, connecting with the Cloudburst Strategy, taking care of natural areas, parks, cemeteries and urban development. It focuses on trees as well as architecture, and it proposes that we should also have access to 'blue' urban nature, namely water. Interestingly, it points out the areas that are owned by the city, as well as areas that are not owned by the city.

IB: Who is responsible for making it happen?

TS: We have included areas under different ownership in the strategy so there is a level of partnership involved. There are core teams concerned with the green areas that we own ourselves, those we do not own and new green areas in urban developments, along with the urban nature that is already there. If we are to succeed with this strategy, we have to work together with a lot of the investors and stakeholders of the city.

IB: Is it about participation on a slightly different level – with developers and landowners?

TS: Yes, but there is an indicator stating that urban nature has to be included in all of the phases in the city of Copenhagen's planning system. Another indicator is that 90% of all Copenhageners in a new area should have access to a park or urban nature area within under 15 minutes. There is a precise indicator so that we can go and work with the stakeholders and say, 'How can you be a part of making this happen?'

IB: What kind of time span do you need to go from strategy to local plan? Do local plans take some time to develop?

TS: Yes, but as soon as a new strategy has been decided, we have to implement it in every detailed plan that comes after that. So, of course, if we have started site-specific planning before the strategy, we cannot force the stakeholders to implement it – but as soon as the strategy has been decided, we can start to force the developers to work their development into the goals.

IB: Is it too early to say something about the resilience of the strategy?

TS: Well, we have been working with urban nature for quite some years. Resilience is evidenced in the new urban spaces that we have delivered recently, which have a lot more soft landscaping and biodiversity than before. For example, the new urban spaces around Panum or Axel Tower have a lot more variety in their landscapes than five years ago.

Other aspects might be the bicycle parking that is now integrated in the design of buildings, such as one of the university buildings, which makes access and parking much easier. When you are in the bike park, you can look up into the heart of the whole building, the lobby, the inviting space where everybody reads. There is a connection between the bike parking area and the indoor space, so people use it. Everybody can pass through, you do not have to have a key, so if you as a citizen are making a shortcut through the city, you can pass through that bike parking area and go underneath the building and go on the other side of the building.

IB: Do you know how to measure success? You said 90% of citizens will be within 15 minutes of a park?

TS: There are eight indicators altogether. Two are concerned with the theme of urban nature in the green areas that we already have, two with the theme of urban development, two more with the theme of urban nature that we have in public areas that are not yet green, and two are concerned with urban nature in areas in private ownership. For example, regarding urban nature in private areas, one indicator is that 10% of Copenhageners should experience active engagement in the work to create more and better urban nature, the second indicator is that Copenhagen city should facilitate 50 partnership projects with urban nature.

IB: What happens if you do not meet the targets – do you change them?

TS: I do not think that we will change the targets, but we might change the actions to get there. In our climate plan, we asked the politicians if we should change the target date of 2025. We had a lot of discussions with them about that, and they said, ‘No, we still believe in it.’

IB: What do you think the role of architects is within the municipality in the context of these strategies?

TS: I think we could focus on the role and relevance of architects implicated as holistic thinkers again. A lot of the urban issues demand that we work with experts from different fields, and the architect could be the one that tries to connect the different expertise and shape it into a whole and holistic project. Vitruvius said that the role of the architect is to know a little bit about everything, but not too much, and then to ask everyone about their expertise and then connect it. I have been using that idea a lot recently in discussion with CEOs, because they often like to think that architects are experts, and not holistic thinkers. I try to explain to them that architects are educated as holistic thinkers, and this is a great strength.

21

COMMONS-BASED URBAN RESILIENCE

An interview with Constantin Petcou and
Doina Petrescu – atelier d'architecture
autogérée¹

aaa with Kim Trogal

KIM TROGAL (KT): For a number of years you have oriented your research and practice towards ideas and practices of resilience. Could you perhaps start by telling us what this term means to you?

ATELIER D'ARCHITECTURE AUTOGÉRÉE (AAA): Resilience theory has emerged with the need to address the unprecedented environmental, social and economic challenges marking the last decades. The question of urban resilience refers to how much and which kinds of disturbances urban areas can absorb, while still continuing to positively promote social and ecological evolution. In the context in which more than half of the world's population lives in cities, a percentage that is expected to increase to 70% by 2050 (Department of Economic and Social Affairs 2011), cities are responsible for almost 75% of the global resource consumption, and for more than 70% of energy-related global greenhouse gas emissions (Neuens et al. 2012). Cities have to deal not only with the unknown and unpredictable effects of climate change (Intergovernmental Panel on Climate Change 2015), but also the multiple and interlinked challenges of resource depletion, loss of welfare and financial crises. They are now faced with a 'resilience imperative' (Lewis & Conaty 2012).

This imperative has been now fully recognised by international policy, as evidenced in recent frameworks (e.g. Habitat III, COP21, World Urban Forum), becoming almost 'a pervasive idiom of global governance' (Walker & Cooper 2011). However, all levels and scales are necessarily involved in urban resilience, and cities cannot become more resilient without the involvement of their residents. Although some governments have started to recognise the essential role of community empowerment in urban resilience, yet in promoting supporting policies, these policies tend to focus on community self-reliance and empowerment, by reducing the state contribution and encouraging volunteering and community activity. Rather than benefiting

from it, they exhaust communities' resources without offering economic and political support for long-term action (Welsh 2014). There is therefore a need for integrating top-down and bottom-up policies and complementing strategically public and civic initiatives, particularly in relation to urban resilience governance.

There is also a need for empowering communities' agency of change at wider scales. This might result in challenging neoliberal policy and fostering trans-local relations between initiatives, by creating links between community groups and broader social movements (MacKinnon & Derickson 2013). The 'commons' movement provides a good example in this sense. Historically concerned with communal management of land and resources at a local scale, usually in rural contexts, the contemporary commons movement has opened up to include new physical spaces of communal ownership and engagement in urban areas, and, importantly, also shared heritage and rights, including social and cultural resources, such as scientific knowledge and the Internet. These commons often overlap with grassroots resilience initiatives, allowing them to gain transformative dimensions and potentials for a regime shift (Folke et al. 2010). Grassroots resilience movements are producing new social and economic values, having an important role in 're-commoning' the assets necessary for a community to sustain collective activities in the neighbourhood and beyond (Brown et al. 2012). In doing so, they can contribute to a new political-economic agenda of the 'commons', within a broader process of connecting and expanding the 'cracks' in the logic of capitalism and proposing new alternatives (Holloway 2010) and new forms of commons which are more adapted to the challenges of the future (Negri & Hardt 2009).

In our commons-based approach to resilience, we, as aaa, were interested in bringing these two questions together: how to support long-term resilience by integrating bottom-up and top-down initiatives involving different scales and sectors, and how, by doing this, to challenge existing systems and propose new social and economic alternatives? This is indeed not only a 'resilience'-focused project, but also a political project.

KT: So how has resilience, as both an ecological and a political project, become manifest in your practice?

AAA: The main project in which we have addressed these questions is R-Urban, a framework for bottom-up resilient urban regeneration, initiated by aaa in 2008. We conceived R-Urban after previous projects dealing with the setting up of urban commons in different Parisian neighbourhoods. This was usually done by using temporary land opportunities, such as sites during the meanwhile period before development (as was the case with the Ecobox project) or unbuildable land resulting from urban reconfigurations (in the case of the project Passage56), and by enabling residents to appropriate and 'common' them. These urban commons projects had a strong social and ecological component that translated into programmes such as gardening, compost- and energy-making, cooking, skill sharing, local culture. The projects were small

and local, each having a strong impact in their neighbourhoods, involving citizens from diverse backgrounds and ages.

In the aftermath of the financial crisis of 2007–2008 and the failure of the COP20 global climate agreement, we felt that we needed to act in response to the slow pace of government action and the lack of consensus in addressing the challenges of global crisis and evaluating their consequences for people's lives. We were concerned that the type of projects we used to do, did not have strong enough agency to operate the necessary change rapidly and in an impactful way. They were limited in size and scope.

R-Urban was conceived as an open source strategy which can adapt to any local context, enabling residents to play an active part in changing the city while also changing their ways of living in it. This strategy, which has been implemented in few towns in the Paris region and in London, creates a network of citizen projects and grassroots organisations around a series of self-managed collective facilities – civic hubs – hosting economic ecological and cultural activities and everyday practices that contribute to boosting resilience in an urban context. The hubs are openly programmed depending on the local social and economic assets. They incrementally evolve towards urban commons. The network acts through locally closed circuits that activate material (e.g. water, energy, waste and food) and immaterial (e.g. knowhow and culture) flows between key fields of activity (e.g. economy, habitation and urban agriculture) that already exist or could be implemented within the existing fabric of the city. The network of civic hubs starts at a neighbourhood level and progressively scales to the city and regional level, resulting in small-scale impacts taken to larger-scale outputs.

R-Urban's specificity is that although it has been conceived and initiated by architectural designers, the framework itself is co-produced and open to a wide range of actors (i.e. residents, local authorities, public organisations, professionals, civic stakeholders), who are invited to take various responsibilities in the project's governance. In contrast to other regeneration projects conceived by specialist teams and facilitated by managerial structures, the designers, architects and planners here take an active role as initiators, facilitators, mediators and consultants in various civic partnerships brought about by the project. This leads to a more effective, faster and more sustainable implementation, and allows for greater participation of non-specialists (Petrescu, Petcou, & Baibarac 2016).

The first implementation of the R-Urban strategy took place in Colombes – a suburban town of 84,000 inhabitants near Paris. aaa presented the strategy to the local council and decided to set up a partnership with them and a number of civic organisations and local residents as part of an environmental innovation project funded by the EU. In order to test the replicability of the strategy in a different European city, the partnership included also PublicWorks, a critical design practice that occupies the terrain in between architecture, art, performance and activism, working in Hackney Wick in London. These first

implementations were meant to test a strategy model that can be adapted and replicated in other contexts, with the aim of advocating for new policies and funding streams to support further developments.

In Colombes, the network of three hubs offered a micro-farm, recycling plant and cooperative eco-housing. Two of the hubs were built – Agrocité and Recyclab – their architecture showcasing the various issues they address, such as local material recycling, local skills, energy production and food-growing (Figures 21.1 and 21.2).

Agrocité is an agricultural hub comprising an experimental micro-farm, community gardens, pedagogical and cultural spaces, as well as a series of experimental devices for compost heating, rainwater collection for garden irrigation, solar energy production and grey water phyto-remediation. In terms of organisation, Agrocité is a hybrid structure, with some components running as social enterprises (e.g. the micro-farm, market, worm compost farm and café) and others run by local organisations (e.g. the community garden, cultural and pedagogical spaces).

Recyclab is a recycling and eco-construction unit comprising several facilities for storing and reusing locally salvaged materials, recycling and transforming them into eco-construction elements for self-building and retrofitting. An associated ‘fablab’ has been set up for resident use. Recyclab functions as a social enterprise.

FIGURE 21.1 Agrocité urban agriculture hub in Colombes, 2013.

Photo: Andreas Lang

FIGURE 21.2 Recyclab recycling and eco-construction hub in Colombes, 2013.

Photo: aaa

Both hubs were located on temporary available public land and are based on reversible building designs, meaning they can easily be relocated in time. The reversibility is an ecological principle implying that the site can be reinvested in time by other urban programmes, according to evolving needs and conditions. It also implies that the building itself can be dismantled, rebuilt by reusing most of materials and infrastructures and be repurposed in a different context for different users.

Over the last five years, the project involved 400 citizens in co-managing 5000m² of urban land to produce food, energy and housing, while actively reducing waste and water usage. In Hackney, one mobile hub, including a temporary garden and a biogas production facility, was built.

R-Urban is now expanding to more locations and is being adopted by different civic groups. In Île-de-France, two other towns (Gennevilliers and Bagneux) are currently planning to construct hubs. With the construction of the Wiki Village Factory in Paris (Figure 21.3) in 2020,² which is a cluster of social and ecological innovation and a sort of headquarters of R-Urban, providing centralised support, we hope that the R-Urban network will operate successfully at the regional level in few years' time. In London, R-Urban are collaborating on a new development with Public Works and the Poplar Housing and Regeneration Community Association, and in Senegal, the Rufisque Department and the GRDR pan-West African development

FIGURE 21.3 Wiki Village Factory, Paris, 2016.

Drawing: aaa and Deswarte

organisation aim to implement an agricultural hub following the R-Urban principles. There are many other perspectives of expanding the network and its principles both in Europe and in the global South, where it is the most needed.

KT: In your practice, there is a very strong pedagogical dimension, which allows people to learn about ecological issues and ecological practices. Could you tell us about these initiatives and why you have made learning central to your projects? How or why is pedagogy important in building resilience?

AAA: Philosopher Ernesto Laclau stated that ‘constructing a people is the main task of radical politics’ (2006). aaa was aware that a radical urban resilience project involves changes in people’s attitudes, lifestyles, ways of living and working. Unlike other initiatives exclusively dealing with resilience from a technological and environmental perspective, R-Urban advocates a general ‘change of culture’, understood as a change in how we do things to change our future.

The R-Urban hubs are spaces in which ordinary citizens can learn and test resilience practices collectively. In learning how they can contribute towards reducing the ecological footprint, near-at-hand relationships based on solidarities are also reinvented. This means experiencing and learning new ways of being involved and deciding collectively, sharing spaces and grouping facilities, rules and principles of cohabitation. The hubs provide the resources and support to act collectively towards these collective resilience objectives, and at the same time develop individuals' productive activities, such as helping people to set up a project, get a green job, give a hand, teach and learn. The transformation towards resilience needs to take place on the scale of the neighbourhood and the city, but also on the micro-scale of each individual, each subjectivity. As Rob Hopkins puts it, 'resilience is not just an outer process: it is also an inner one, of becoming more flexible, robust and skilled' (2010, p. 15). The R-Urban hubs support the building up of a 'culture of resilience' involving processes of reskilling, sharing, social networking and mutual learning. These micro-social and micro-cultural practices, usually related to individual lifestyles and daily activities (e.g. food cultivation and waste collection, car-sharing exchanging tools and skills with neighbours), elicit attention to details, singularities, and the creative and innovative potentials found on the level of everyday life.

This is what we called 'acting': a sort of civic activism reflecting the active involvement of citizens in the changes they want to see and in their multiplication and dissemination. We have developed this incrementally as a method through a number of collaborative projects and publications. Since 2007, aaa published the series *ACT* which supports the dissemination of collective and applied knowledge for civic activism: *Urban ACT* (2007), *Trans-Local ACT* (2010), *R-Urban ACT* (2015) and *Learn to ACT* (2017).

Speaking about learning, we have learned a lot ourselves from these first implementations about how to better build local capacity to invent and transform, but also, in parallel, about the political and administrative constraints that block this undertaking. One important moment was the forced dismantling of two hubs from Colombes (Figure 21.4) after the change of the municipal team following the local elections, when we understood the politically contested nature of the commons-based resilience projects, which are indeed threatening the capitalist system in place.³ Being aware of the fragility of the existing political support for urban commons and the lack of protective legislation in the French context, we have conceived facilities to be reversible and to allow for easy and costless relocations, guaranteeing as such the sustainability of resources and the expansion of the network.

However, given the urgency of the 'resilience imperative', we are concerned with proposing ways of bypassing these constraints and political cycles by advocating re-stated policies and structures. R-Urban proposes forms of

FIGURE 21.4 Protest against the Agrocité demolition in Colombes, 2016.

Photo: Analia Cid

organisation which function both at the local and regional scale (hubs, local networks, CLT) in such a way that the resilience of the project is reinforced. We are currently negotiating with diverse local and national bodies for changes in policy and funding, to enable greater sustainability of initiatives like R-Urban.

KT: While you are working towards addressing ecological issues (e.g. urban agriculture, recycling, reducing energy and water consumption), at the same time you are co-creating new social forms of organisation around these new eco-infrastructures. What are these organisations? What do they demand from citizens, and from you, and what can they offer?

AAA: R-Urban proposes new social-spatial organisations for resilience, around an open network of urban commons. A central question for us is the sustainability of the network, which foregrounds the importance of governance. In her study of commons, economist Elinor Ostrom (1990) insisted on recognising governance issues as key for the sustainability of commons, proposing a number of design principles. More recently, law researchers Foster and Iaione (2017) suggested revisiting Ostrom's design principles in the context of urban commons, which are indeed far more complex than the rural commons studied by Ostrom (i.e. fisheries, pastures, forests). They retain only five principles:

collective governance, enabling state, social and economic pooling, experimentalism and tech justice. R-Urban addresses all these principles.

The R-Urban collective governance strategy is based on a multipolar network involving local and regional actors, formed around the various nuclei of activities that animate forms of exchange and collaboration (Figure 21.5). Each hub is thus proposed as a commons organisation which is part of a mutual coordination platform that brings together various entities. R-Urban is a sort of complex 'actor network' (Latour 2005) in which both humans and non-humans (hubs, materials, devices, frameworks, regulations) have agency.

The R-Urban hubs are designed to set up local circular economies in the neighbourhood using seed funding to construct physical infrastructure (the hubs) and provide development and training courses. This aim of the initial investment was to enable the emergence over time of a diversity of small economic practices:

- gift economies (voluntary or based on solidarity);
- material (swaps, loans, barter) and non-material;
- exchanges (knowledge and skills, time);
- collaborative economies;
- monetary economies.

These 'diverse economies' are an important asset for a commons-based economic transition (Gibson-Graham, Cameron, & Healy 2013). The hubs are as such nodes of an ecological metabolic system emerging in the neighbourhood and expanding further at the city level.

Within the hubs, organic waste is collected from the neighbourhood and composted for urban agriculture and local heating, rainwater is collected and grey water filtered and reused, waste is recycled or reused, and energy is produced locally. The common pool of resources is visible and circular, involving actively all R-Urban members in its reproduction. The hubs were deliberately created as non-profit associations. Any common benefit would be reinvested and distributed across the project to enlarge the pool of physical and social resources and the commoning process in general.

The functions of the hubs were not pre-established, but were meant to emerge slowly according to available skills and implications. Labelled as 'environmental innovation', R-Urban has developed an experimental dimension as fundamental to the project. Participants were openly involved in co-producing the programme of the hub over time, which is conceived as an open system. Each of the proposed activities or emerging practices is governed by the group participating in the co-production of these dynamic and resilient systems in order to evolve rhizomatically, transforming and adapting according to who joins in the ecosystem.

FIGURE 21.5 Agrocité actor network.

Drawing: aaa

KT: You mentioned briefly ‘tech justice’, could you elaborate on what this means and how you have addressed this in your work?

AAA: Tech justice is one of the five design principles that articulate the conditions for a collaborative city, according to Foster & Iaione (2017). Tech justice implies access to technology, open digital infrastructure and data protocols that are driving commons-based collaboration, enabling also, from our point of view, collective resilience practices.

In response to these concerns, we worked with participants to co-conceive low-tech devices that can be easily reproduced without needing specialist skills and sophisticated means. They included: compost heating devices, smart irrigation, rainwater management and phyto-filtration, but also digital tools and open data protocols for the management of the hubs and of the network itself.

Together with a research team at the University of Sheffield,⁴ we co-designed a set of digital tools that can evolve incrementally with the contribution of the users themselves. Thus, rather than focusing on the development of new software, the co-design process focused on exploring possibilities for (re)using and (re)assembling existing technologies that can be customised to specific contexts without the need for extensive or complex technical modifications. For example, the Agrocité Hub digital toolkit prototype includes tools for management, organisation and connection based on accessible software or platforms: a shared calendar, a resource map, a recipe book, a planting and gardening guide, an instructions wiki around the use and maintenance of specific facilities such as the compost unit and the chicken coop, and a community page (the hub’s existing Facebook group page). Such an open source toolkit can evolve and be customised by any future hub community according to their needs and skills, enabling more efficient management and greater sociality within users. This approach, which enables further iterations and complexifications in time, ensures both the resilience of the network and the resilience of the technology that support its maintenance and scaling up (Figure 21.6).

KT: Speaking about scale, while you work in a very embedded way with local communities, you are also concerned with questions around the ‘scale’ of actions and their potential impact that you mentioned earlier. Could you tell us about your concerns and the ways in which you have been responding to this issue?

AAA: The question of how to scale commons-based practices which usually take place at a very local scale is indeed a big question. This is why we have based the strategy on the idea of networks. The network is a decentralised form of organisation, allowing at the same time the independence of hubs (in terms of programme, management and governance), but also their organisation at a trans-local level, enabling a larger-scale agency and impact.

FIGURE 21.6 Agrocité Hub co-design session, 2016.

Photo: EcoDA team

We set up an R-Urban Charter to explain the strategy and state the principles of the network, which has been signed by dozens of organisations. We are currently setting up a R-Urban Community Land Trust, which will be a great organisational tool for the scaling of the network. The R-Urban community will be able to better manage their assets and invest more efficiently in their development, following the R-Urban commoning principles. In addition to these organisational tools, we realised that the physical tools need diversification in terms of resources and scale, in such a way that the network doesn't spread homogeneously only through local hubs similar in size and programme. We have also designed bigger units, which provide specific resources for the network, such as training and financial support. This is the case with the Wiki Village Factory that I have mentioned before, which is a cluster of social and environmental innovation that has been conceived as a kind of headquarters for the R-Urban network. The Wiki Village Factory (currently in construction for 2020) is a 7000m² building located in the 20th district of Paris, acting as an innovation platform and a place for meeting, gathering and sharing between professionals and active citizens in the areas of circular economy and ecological transition.

We hope that by developing all these tools, both physical, social and digital, the R-Urban strategy will have more and more impact and generate an important positive difference. Hopefully, a commons-based urban resilience movement involving numerous citizens will emerge in the next few years....

KT: How does the question of urban resilience prompt changes within the profession?

AAA: With R-Urban, we advocate for new roles for architects. Rather than acting merely as building designers, architects can be initiators, negotiators, co-managers and enablers of processes and agencies that strengthen existing and emerging initiatives of civic resilience. Local governments also need to play a new role in such citizen initiatives by allowing new types of civic, self-managed facilities to emerge and persist. This is the passage from the welfare state to a civic economy in which new forms of public-civic partnerships should be key components.

With R-Urban, we have learned that progressive practices initiated while acting locally and on a small scale can gain agency and have a large-scale impact. We have learned that architects can steer civic cultures of collaboration and sharing that can conduct to sustained economic, environmental and social changes. We have learned that design is politics. This is indeed the message we received when R-Urban was awarded the European Prize for Political Innovation in Ecology, and this is the message we want to pass on to other architects and designers.

Notes

- 1 atelier d'architecture autogérée (aaa) is a research-led practice founded in 2001 by Constantin Petcou and Doina Petrescu in Paris, including architects, artists, urban planners, landscape designers, sociologists, activists, students and residents. The practice varies between seven and 15 members, and is funded by research grants (e.g. EC Directorate General for Education and Culture, French Ministry of Environment Ecology) and public/private funds for innovation (i.e. Life+ EC programme for Environment Policy and Governance). aaa has recently been awarded the Prize for Political Innovation in Europe 2017 (Ecology category), the Zumtobel Award for Sustainability and Humanity in the Built Environment 2012 (Research and Initiative category), the Curry Stone Design Prize (2011) and the European Public Space Award (2010). aaa conducts action research on urban mutations and cultural, social and political emerging practices in the contemporary city, with a main focus on urban governance, resilience and participation in architecture. This involves participative design tools that allow a multiplicity of actors to be involved in decision-making, planning, construction and management of collective and public spaces in the city.
- 2 The Wiki Village Factory was initially a competition entry in response to the call for innovative architectural projects *Reinventer Paris*, which is the city's flagship international competition for 23 key sites located in Paris. The competition was launched in 2015 with the aim to 'prefigure what the Paris of tomorrow might be' (Anne Hidalgo, Mayor of Paris). The competition was meant to 'promote experiment and give concrete shape to the range of innovations that Paris needs'. The Wiki Village Factory is a cluster of social and environmental innovation which has been conceived as a kind of headquarters for the R-Urban network in the very heart of Paris, Place d'Italie. The project provided a co-production platform and infrastructure for social entrepreneurship and collaborative work in the area of urban resilience via eight hubs: Agro-Food, Eco Care, Transition, RRR (Reduce, Reuse, Recycle), Industries Créatives, Circular Economy, Social Economy, Social Innovation, and Digital Incubator. The entry was

- awarded second place, and has been offered a new building location in Paris, in the 20th district.
- 3 One year after the inauguration and successful implementation of the two R-Urban hubs, the new municipality decided to prevent their continuation for political reasons. In June 2015, the new mayor decided to replace the Agrocité Hub with a temporary private car park for 80 cars. This happened despite R-Urban being internationally recognised for pioneering citizen-led urban regeneration, as confirmed by the numerous international prizes awarded to the project. After a lost court case, Agrocité was forced to relocate to one of the neighbouring cities. An international protest campaign denounced the situation and re-stated important civic support for the project. Currently, the Agrocité Hub has been rebuilt in Gennevilliers.
 - 4 This collaboration was part of EcoDA – Experimental co-Design Approaches: Investigating Possibilities for Creating Networks of Resilient Citizens and Civic Actions of Urban Resilience through Hybrid Platforms – a research project conducted by Dr Corelia Baibarac and Prof. Doina Petrescu as the Horizon 2020 Marie Curie Individual Research Fellowship programme at the University of Sheffield, 2016–2017.

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Project websites

aaa: www.urbantactics.org

Agrocité Hub toolkit: <https://agrocitehub.hotglue.me/>

EcoDA: <http://ecodaresilience.net/>

R-Urban: <http://r-urban.net>

Wiki Village Factory: www.urbantactics.org/projets/wvf/

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